

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.



Report Prepared by:
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Date: February 2006

Table of Contents

<u>Section</u>	<u>Page</u>
Background.....	1
Scope of Work.....	1
Rehabilitation Feasibility.....	4
Cost Estimate.....	6
Appendix.....	10
Summary of Recommendations.....	11
Tunnel Inspection Reports.....	12
Tunnel 1-2	
Tunnel 1-3	
Tunnel 1-4	
Tunnel 3-5	
Tunnel 3-46	
Tunnel 4-6	
Tunnel 6-8	
Tunnel 6-28	
Tunnel 8-8	
Tunnel 25-26	
Tunnel 28-29	
Tunnel 29-30	
Tunnel 31-32	
Tunnel 31-33	
Tunnel 31-38	
Tunnel 31-44	
Tunnel 32-32	
Tunnel 72-73	
Tunnel 73-74	
Tunnel 74-75	

ST. ELIZABETHS- WEST CAMPUS

Underground Tunnel Study

Background

St. Elizabeths, consisting of over 300 acres separated into West and East Campuses, is a former mental hospital run by the Federal Government in Anacostia of SE Washington, D.C. The entire compound has been declared a National Historic Landmark. The Federal Government turned over operations of the hospital to the District of Columbia in 1987, while maintaining ownership of the West Campus.

The West Campus consists of 176 acres with 61 buildings which are in a deteriorated state. The buildings are currently under renovation for future operations. A matrix of underground tunnels on the West Campus exists between many of the buildings. The West Campus contains buildings that date back to the earliest development of St. Elizabeths Hospital (SEH), originally named Government Hospital for the Insane (GHI). The hospital was also used to treat U.S. soldiers during the Civil War and has a Civil War cemetery on the West Campus.

The early campus, 1855 to 1900, existed as a self-sufficient community. The campus consisted of buildings for various functions such as General Kitchen, Bakery, Detached Dining Hall, Detached Kitchen, Center Hall including the East and West Wings as well as buildings for staff residence. These buildings were generally connected with an underground tunnel with a small track bed, presumably used with carts for distribution of materials.

In the absence of existing documentation on these tunnels, a convention for naming the tunnel based on the building numbers that the tunnel connected was utilized. Eighteen tunnels totaling 3,865 feet in length were inventoried, and the walk through inspection of these tunnels was performed December 12 through 14, 2005. The presentation of results from these structural assessments provides the purpose for this report.

Scope of Work

1) Current Structural Condition of Underground Tunnels

Assess the current structural condition of the existing underground tunnels and recommend the necessary upgrades needed to restore these tunnels to a functional usable space as a passageway for people and a passageway for utilities.

Observations from the site visit: An old utility drawing appears to indicate roughly 33 tunnels totaling around 6,000 lf; however, many of these “tunnels” are too small for passageways and deemed to be pipe chases for the steam and condensate pipe system. The table on the following page lists the tunnels that were assessed.

No.	Name	Building No./Name		Building No./Name		Length	Type
1	1-3	1	Center Hall	3	West Wing	170	Basement
2	1-4	1	Center Hall	4	East Wing	170	Basement
3	3-5	3	West Wing	5	Garfield	425	Basement/Horseshoe
4	3-46	3	West Wing	46	Bakery	95	Basement
5	4-6	4	East Wing	6	Pine	305	Basement
6	6-8	6	Pine	8	Willow	110	Basement
7	6-28	6	Pine	28	Linden	120	Basement/Horseshoe
8	8-8	8	Willow	8	Willow	80	Basement
9	28-29	28	Linden	29	Holly	65	Horseshoe
10	29-30	29	Holly	30	Det. Nurses Home	55	Horseshoe
11	31-32	31	Atkins Hall	32	Relief	60	Horseshoe
12	31-33	T	31-44	33	Det. Dining Hall	75	Horseshoe
13	31-38	T	31-44	38	Hagen Hall	640	Horseshoe
14	31-44	31	Atkins Hall	44	Old Storeroom	405	Horseshoe
15	32-32	32	Relief (N)	32	Relief (S)	200	Basement
16	72-73	72	M Building	73	C Building	275	Basement
17	73-74	73	C Building	74	Administration	315	Basement
18	74-75	74	Administration	75	B Building	300	Basement
					Total	3,865 LF	

Two other tunnels were identified, one connecting the north and south ends of Center Hall (Buildings 1 and 2); however, no track bed appears to exist. The other tunnel connecting Allison A, Building 25 to Allison B, Building 26 has been blocked off at each end.

At ground level, many of the surface vents were found to be accessible. Each tunnel access inside the building was readily found directly under the main stairway. Two types of “tunnels” were assessed; ten of the eighteen had track-beds running along “basement” type hallways and six of the eighteen had track-beds in brick or brick-lined arch or horseshoe type tunnels. Two of the tunnels were combinations where a significant portion of the tunnel was basement type while another significant portion was horseshoe type.

Tasks:

- a) Assess current conditions of the existing underground tunnels. The tunnels were structurally sound; however, the basement type particularly Tunnels 1-3, 1-4, 3-5, 4-6, and 6-8 where the tunnel ceiling is the floor above still have sections where the floor above has not yet been replaced. Many of these areas are significantly deteriorated and decayed to the point of collapse. The walls were structurally sound with only minor mortar joint cracks.

The horseshoe type had some isolated areas of undermining under the floor pavers (bricks); however, the floors were otherwise structurally sound. The walls and arches were also sound; however, Tunnels 6-28, 31-44, and 31-38 cross

underneath roadways. At the time of the assessment, no evidence of Live Load distress was noted. The thickness of the fill over the tunnel and under the roadways was measured during the geotechnical investigation. Tunnel 6-28 is a brick horseshoe type corridor which routes below the parking lot south of the East Wing Building. Tunnels 31-38 and 31-44 are brick horseshoe type corridors which partially run below roadways Redwood Drive and Hemlock Street. All these tunnels have shallow cover ranging from 5" to 10.5" below the roadway. Although preliminary calculations indicated that these tunnels will not be overstressed by the standard HS 20 Live Load, they will be exposed to large vibratory forces due to truck traffic on this shallow cover. Vibrations could severely damage the mortar joints in the masonry and therefore require some means of distributing this load over a larger area. Steel plates covered with asphalt wearing surface placed on the roadways or parking lot immediately above each of these tunnels could adequately distribute these vehicular traffic loads.

- b) Recommend necessary upgrades needed to restore these tunnels to a functional use as passageways for people or utilities. For the complete list, see Recommendation Table in Appendix (page 11).

Basement Type Tunnels:

- Tunnels 1-3 and 1-4 both have areas where the ceiling (timber framed floor above) has not yet been replaced. These areas need to be replaced or at a minimum have shoring installed on a priority basis.
- To utilize Tunnels 1-3, 1-4, 3-46, 4-6, 6-8 and 8-8 as passageways for people or utilities,
 - 1) debris will need to be removed from the floor
 - 2) electric lines will need to be replaced
 - 3) lighting conduit, fixtures and wiring will need to be replaced
- To utilize Tunnels 73-74 and 74-75 as passageways for people or utilities,
 - 1) electric lines will need to be replaced
 - 2) lighting conduit, fixtures and wiring will need to be replaced
- To utilize Tunnel 32-32 as passageways for people or utilities,
 - 1) debris will need to be removed from the floor
- To utilize Tunnel 72-73 as passageways for people or utilities,
 - 1) the undermined area of the floor will need to be repaired
 - 2) the electrical conduit will need repair/ replacement at one location

Horseshoe and Basement/Horseshoe Combination Tunnels:

- The brick-arch/horseshoe tunnels are generally too narrow to be utilized as a passageway for people; however, they could readily be utilized as a passageway for utilities.

- To utilize Tunnels 6-28, 28-29 and 29-30 as passageways for utilities,
 - 1) debris will need to be removed from the floor
 - 2) electric lines will need to be replaced
 - 3) lighting conduit, fixtures and wiring will need to be replaced
- To utilize Tunnels 31-32 and 31-33 as passageways for utilities,
 - 1) electric lines will need to be replaced
 - 2) lighting conduit, fixtures and wiring will need to be replaced
- To utilize Tunnels 31-38 and 31-44 as passageways for utilities,
 - 1) debris will need to be removed from the floor
 - 2) electric lines will need to be replaced
 - 3) lighting conduit, fixtures and wiring will need to be replaced
 - 4) water leak through lining will need to be sealed
- Tunnel 3-5 has an area of severely deteriorated ceiling (timber floor above). These timber members need to be replaced on a critical basis. Additionally other distressed areas will require replacement on a priority basis. This tunnel ends under Building 5 as a brick arch too narrow for people yet adequate for utilities. Further, to utilize the basement portion as a passageway for people or utilities,
 - 1) debris will need to be removed from the floor
 - 2) electric lines will need to be replaced
 - 3) lighting conduit, fixtures and wiring will need to be replaced
- In addition to the above noted recommendations Tunnels 6-28, 31-38, and 31-44 pass underneath roadways and can be subjected to vehicular loads. These vehicular loads will transfer vibrations that could severely damage the mortar joints in the masonry. Therefore it is strongly recommended that some means of distributing this load over a larger area be utilized. Steel plates covered with asphalt wearing surface placed on the roadways or parking lot would provide this means of adequately distributing these vehicular traffic loads.

2) Rehabilitation Feasibility

Issue a report on feasibility (cost effectiveness) to stabilize and rebuild these tunnels to a usable space as a passageway for people and a passageway for utilities.

Most of the basement type tunnels will be adequate for a passageway space for pedestrians after recommended repairs have been made. Several of the basement corridors do not have sufficient head clearance for passageways due to low ceilings or low vertical clearance below pipes; however, will be acceptable for maintenance access and routing utilities. The horseshoe type brick arch tunnels will not be adequate for pedestrian passageways, but will be acceptable for pipe chases and maintenance access.

Seven of the brick arch tunnels have inadequate vertical clearances for pedestrian use. Tunnel 3-5 has a brick arch portion near the west end that is unsatisfactory for pedestrian passage; however, the remainder will be sufficient for usage as a passageway. Although these tunnels are inadequate for pedestrian use, they will serve well as pipe chases. Tunnels 6-28, 28-29, 29-30, 31-33, 31-38, and 31-44 have restricted vertical clearance due to pipes running across the tunnels from wall to wall. Tunnel 31-32 has a utility pipe running the length of the tunnel that reduces the vertical clearance to an amount unsatisfactory for pedestrian traffic.

Tunnels 31-38 and 31-44 are brick horseshoe type corridors which partially run below roadways. Tunnel 6-28 is a brick horseshoe type corridor which routes below a parking lot. All three of these tunnels have a shallow cover ranging from 5" to 10.5" to the roadway above. Although these tunnels will not be utilized for pedestrian traffic, we recommend the installation of steel plates overtopped with asphalt placed on the roadways or parking lot above to adequately distribute the vehicular traffic loads.

Horseshoe Type Tunnels (adequate for pipe chases only)					
Name	Building No. / Name		Building No. / Name		Length
3-5	3	West Wing	5	Garfield	75
6-28	6	Pine	28	Linden	70
28-29	28	Linden	29	Holly	65
29-30	29	Holly	30	Det. Nurses Home	55
31-32	31	Atkins Hall	32	Relief	60
31-33	T	31-44	33	Det. Dining Hall	75
31-38	T	31-44	38	Hagen Hall	640
31-44	31	Atkins Hall	44	Old Storeroom	405
				Total	1445 LF

Tunnels 6-28, 72-73, and 74-75 have restricted vertical clearance due to pipes running across the tunnels from wall to wall. Tunnel 72-73, additionally, has a low ceiling to begin with, which causes the tunnel to appear constricted to pedestrian traffic. Some of these tunnels have pipes protruding an undesirable amount from the walls into the walkway.

Basement Type Tunnels (adequate for pipe chases only)					
Name	Building No. / Name		Building No. / Name		Length
6-28	6	Pine	28	Linden	50
72-73	72	M Building	73	C Building	275
74-75	74	Administration	75	B Building	300
				Total	625 LF

Tunnels 1-3, 1-4, 3-46, 4-6, 6-8, 8-8, 32-32, 73-74, and part of 3-5 will be acceptable for pedestrian passageways; however, will require some work before use. The main items which must be performed prior to utilization of the tunnels for pedestrian passageways involve debris removal, refurbishing of electrical lines, and installation of a new lighting system. Occupancy codes will likely require a sprinkler system to be installed in these tunnels, primarily in the corridors without windows. Tunnels 1-3, 1-4, 3-5, 4-6, and 6-8 have ceilings composed of timber flooring for the floor above. Some of these sections have recently been or are in the process of being replaced while other sections were in an advanced state of deterioration at the time of inspection.

Basement Type Tunnels (adequate for pedestrian use)					
Name	Building No. / Name		Building No. / Name		Length
1-3	1	Center Hall	3	West Wing	170
1-4	1	Center Hall	4	East Wing	170
3-5	3	West Wing	5	Garfield	350
3-46	3	West Wing	46	Bakery	95
4-6	4	East Wing	6	Pine	305
6-8	6	Pine	8	Willow	110
8-8	8	Willow	8	Willow	80
32-32	32	Relief (N)	32	Relief (S)	200
73-74	73	C Building	74	Administration	315
				Total	1795

3) Cost Estimate

Include a cost estimates for design and construction to upgrade/restore the tunnels to useable space.

All the tunnels will need basic maintenance items addressed in order to be utilized for either pedestrian use or pipe chases with maintenance access. The basic repairs are lighting and electrical modifications, as well as debris removal. A couple of the tunnels have some water leakage through an area on a wall and local undermined areas beneath the floor. These are shown in the estimated cost tables on the following pages. The estimated costs include all material and labor necessary to perform the work.

The table on the following page shows estimated repair costs for nine basement type tunnels that are adequate for pedestrian use and pipe chases. Estimated repair costs shown on the following table for tunnel 3-5 are only for the basement type portion which will handle pedestrian traffic.

Basement Type Tunnels (utility and pedestrian use)					
Tunnel	Recommendation	Quantity	Unit	Unit Cost	Est. Cost
				\$	\$
1-3	Remove debris from floor.	10	CY	220	2200
	Replace electric lines.	170	LF	4	680
	Replace lighting conduits and wiring.	170	LF	6.5	1105
1-4	Remove debris from floor.	20	CY	220	4400
	Replace electric lines.	170	LF	4	680
	Replace lighting conduits and wiring.	170	LF	6.5	1105
3-5 (partial)	Remove debris from floor.	45	CY	220	9900
	Replace electric lines.	350	LF	4	1400
	Replace lighting conduits and wiring.	350	LF	6.5	2275
3-46	Replace electric lines.	95	LF	4	380
	Replace lighting conduits and wiring.	95	LF	6.5	620
4-6	Remove debris from floor.	5	CY	220	1100
	Replace electric lines.	305	LF	4	1220
	Replace lighting conduits and wiring.	305	LF	6.5	1985
6-8	Remove debris from floor.	5	CY	220	1100
	Replace electric lines.	110	LF	4	440
	Replace lighting conduits and wiring.	110	LF	6.5	715
8-8	Remove debris from floor.	2	CY	220	440
	Replace electric lines.	80	LF	4	320
	Replace lighting conduits and wiring.	80	LF	6.5	520
32-32	Remove debris from floor.	1	CY	220	220
73-74	Replace electric lines.	315	LF	4	1260
	Replace lighting conduits and wiring.	315	LF	6.5	2050
				Total	36,200

The table below shows estimated repair costs for three basement type tunnels that are not adequate for mainstream pedestrian use; however, are adequate for pipe chases and maintenance access. All three of these tunnels as described in section 2 are deemed undesirable for pedestrian use due to low vertical clearances.

Basement Type Tunnels (utility and maintenance access use only)					
Tunnel	Recommendation	Quantity	Unit	Unit Cost	Est. Cost
				\$	\$
6-28 (partial)	Remove debris from floor.	2	CY	220	440
	Replace electric lines.	50	LF	4	200
	Replace lighting conduits and wiring.	50	LF	6.5	325
72-73	Repair undermined area of floor.	50	SF	80	4000
	Repair electrical conduit at kink in tunnel.	2	LF	250	500
74-75	Replace lighting conduits and wiring.	300	LF	6.5	1950
				Total	7,500

The following table shows estimated repair costs for eight horseshoe type tunnels that are inadequate for pedestrian use. Estimated repair costs shown below for tunnel 3-5 are only for the horseshoe type portion that will not adequately handle pedestrian traffic. Tunnel 6-28 is composed of a combination of both basement and horseshoe type tunnels. The horseshoe type portion is tabulated below.

Horseshoe Type Tunnels (utility and maintenance access use only)					
Tunnel	Recommendation	Quantity	Unit	Unit Cost	Est. Cost
				\$	\$
3-5 (partial)	Remove debris from floor.	5	CY	220	1100
	Replace electric lines.	75	LF	4	300
	Replace lighting conduits and wiring.	75	LF	6.5	490
6-28 (partial)	Remove debris from floor.	3	CY	220	660
	Replace electric lines.	70	LF	4	280
	Replace lighting conduits and wiring.	70	LF	6.5	455
28-29	Replace electric lines.	65	LF	4	260
	Replace lighting conduits and wiring.	65	LF	6.5	425
29-30	Remove debris from floor.	2	CY	220	440
	Replace electric lines.	55	LF	4	220
	Replace lighting conduits and wiring.	55	LF	6.5	360
31-32	Replace electric lines.	60	LF	4	240
	Replace lighting conduits and wiring.	60	LF	6.5	390
31-33	Replace electric lines.	75	LF	4	300
	Replace lighting conduits and wiring.	75	LF	6.5	490
31-38	Remove debris from floor.	20	CY	220	4400
	Replace electric lines.	640	LF	4	2560
	Replace lighting conduits and wiring.	640	LF	6.5	4160
	Repair water leak in lining near south end.	1	LUMP SUM	5000	5000
31-44	Repair undermined brick floor at west end.	50	SF	40	2000
	Replace lighting conduits and wiring.	405	LF	6.5	2635
	Repair water leak in north wall lining.	1	LUMP SUM	5000	5000
	Remove debris from floor.	5	CY	220	1100
				Total	33,300

A portion of tunnels 6-28, 31-38, and 31-44 run below a roadway or parking lot. The amount of cover over these tunnels ranges from 5" to 10.5". Due to this shallow depth of cover, it is recommended that a steel plate be placed below the asphalt wearing surface to evenly distribute the loads and minimize any vibrations from vehicular traffic. The estimated costs tabulated below include a ¾" thick steel plate, asphalt removal, asphalt placement, and associated labor to perform the work.

Horseshoe Type Tunnels Below Roadways and Parking Lot				
Tunnel	Recommendation	Quantity	Unit	Est. Cost
				\$
6-28	Place steel plate and asphalt overlay above tunnel.	1	Lump Sum	15,000
31-38	Place steel plate and asphalt overlay above tunnel.	1	Lump Sum	15,000
31-44	Place steel plate and asphalt overlay above tunnel.	1	Lump Sum	15,000
			Total	45,000

The table below summarizes the total estimated cost by tunnel type. The tunnels are grouped as described in the preceding tables.

Summary of Estimated Costs by Tunnel Type	
Type	Est. Cost
	\$
Basement Type Tunnels (utility and pedestrian use)	36,200
Basement Type Tunnels (utility and maintenance access use only)	7,500
Horseshoe Type Tunnels (utility and maintenance access use only)	33,300
Horseshoe Type Tunnels Below Roadways and Parking Lot	45,000
Total	122,000

APPENDIX

SUMMARY OF RECOMMENDATIONS

Tunnel	Critical	Priority	Routine
1-3	None	Shore or replace deteriorated timber flooring not yet repaired.	1. Remove debris from floor, 10 CY. 2. Replace electric lines, 170 LF. 3. Replace lighting conduits and wiring, 170 LF.
1-4	None	Shore or replace deteriorated timber flooring not yet repaired.	1. Remove debris from floor, 20 CY. 2. Replace electric lines, 170 LF. 3. Replace lighting conduits and wiring, 170 LF.
3-5	Shore or replace deteriorated timber flooring, above, 200 SF.	Shore or replace deteriorated timber flooring not yet repaired.	1. Remove debris accumulation, 50 CY. 2. Replace electric lines, 425 LF. 3. Replace lighting conduits and wiring, 425 LF.
3-46	None	None	1. Replace electric lines, 95 LF. 2. Replace lighting conduits and wiring, 95 LF.
4-6	None	None	1. Remove debris from floor, 5 CY. 2. Replace electric lines, 305 LF. 3. Replace lighting conduits and wiring, 305 LF.
6-8	None	None	1. Remove debris from floor, 5 CY. 2. Replace lighting conduits and wiring, 110 LF. 3. Replace electric lines, 110 LF.
6-28	None	None	1. Remove debris from floor, 5 CY. 2. Replace electric lines, 120 LF. 3. Replace lighting conduits and wiring, 120 LF.
8-8	None	None	1. Remove debris from floor, 2 CY. 2. Replace electric lines, 80 LF. 3. Replace lighting conduits and wiring, 80 LF.
28-29	None	None	1. Replace electric lines, 65 LF. 2. Replace lighting conduits and wiring, 65 LF.
29-30	None	None	1. Replace electric lines, 55 LF. 2. Replace lighting conduits and wiring, 55 LF. 3. Remove debris from floor, 2 CY.
31-32	None	None	1. Replace electrical lines, 60 LF. 2. Replace lighting conduit and wiring, 60 LF.
31-33	None	None	1. Replace electrical lines, 75 LF. 2. Replace lighting conduits and wiring, 75 LF.
31-38	None	None	1. Remove debris from floor, 20 CY. 2. Replace electric lines, 640 LF. 3. Replace lighting conduits and wiring, 640 LF. 4. Repair water leak through lining near south end, Lump Sum.
31-44	None	None	1. Repair undermined brick floor at west end of tunnel, 50 SF. 2. Replace lighting conduits and wiring, 405 LF. 3. Repair water leak through north wall, Lump Sum. 4. Remove debris from floor, 5 CY.
32-32	None	None	1. Remove debris from floor, 1 CY.
72-73	None	None	1. Repair electrical conduit at kink in tunnel, 2 LF. 2. Repair undermined area of floor, 50 SF.
73-74	None	None	1. Replace lighting conduits and wiring, 315 LF. 2. Replace electric lines, 315 LF.
74-75	None	None	1. Replace lighting conduit and wiring, 300 LF.

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 1 & 2



NORTH PORTAL



SOUTH PORTAL

Report Prepared by:
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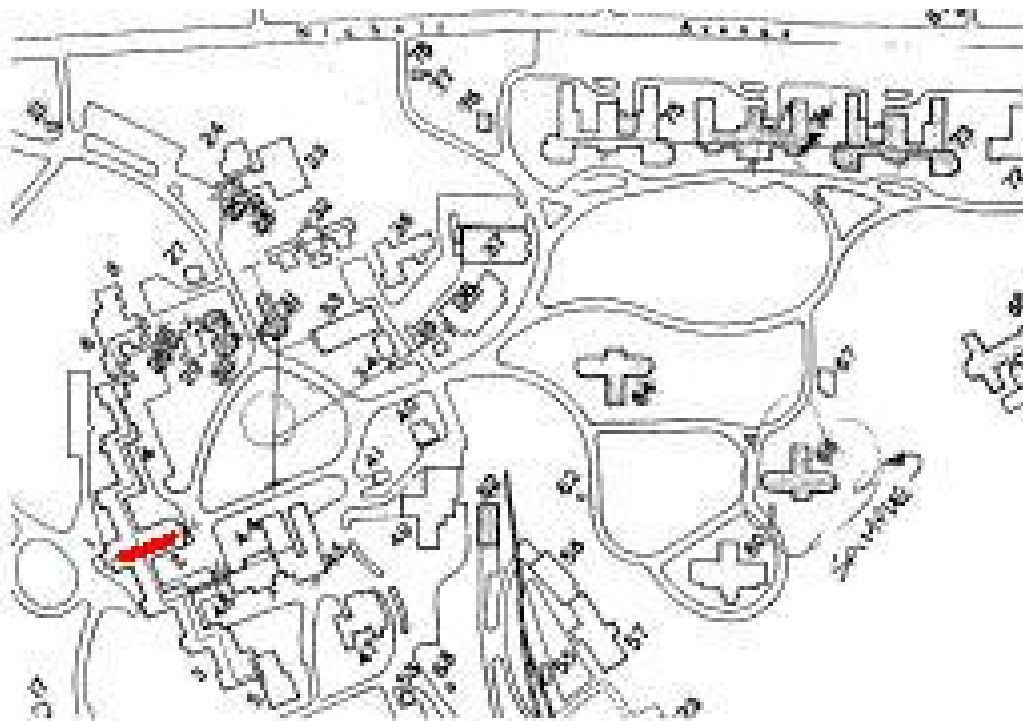
Inspection Date: 12/13/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick/Stone
Total Length	N/A
Springline Width	N/A
Begin Building	1
End Building	2

Tunnel Height	N/A
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	1, 2

Tunnel previously connected the basement of Building 1, Center Hall North to the basement of Building 2, Center Hall South. Currently no evidence of the track way exists; the main chamber under the building appears to be more basement than tunnel.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

Currently no evidence of the track way exists; the main chamber under the building appears to be more basement than tunnel. Building 1 was at the north end of the tunnel and Building 2 is at the south end. The walls are composed of brick and stone masonry.

RECOMMENDATIONS

No Repairs Required

Critical Repairs:

None.

Priority Repairs:

None.

Routine Repairs:

None.

FIELD INSPECTION REPORT**STRUCTURE NO. 1-2**
INSPECTION DATE: 12/13/05

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	N
1. LINING	N
2. PORTALS	N
3. FLOOR	N
4. DRAINS & DRAINAGE	N
5. VENTILATION	N
6. OTHER	N
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	N
1. STEAM	N
2. WATER	N
3. ELECTRICAL	N
4. GAS	N
5. FIBER OPTIC	N
6. OTHER	N
7. OTHER	N
8. OTHER	N

PHOTOS



Photo 1: North portal



Photo 2: South portal

TUNNEL INSPECTION REPORT

**ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 1 & 3**



EAST PORTAL



WEST PORTAL

Report Prepared by:
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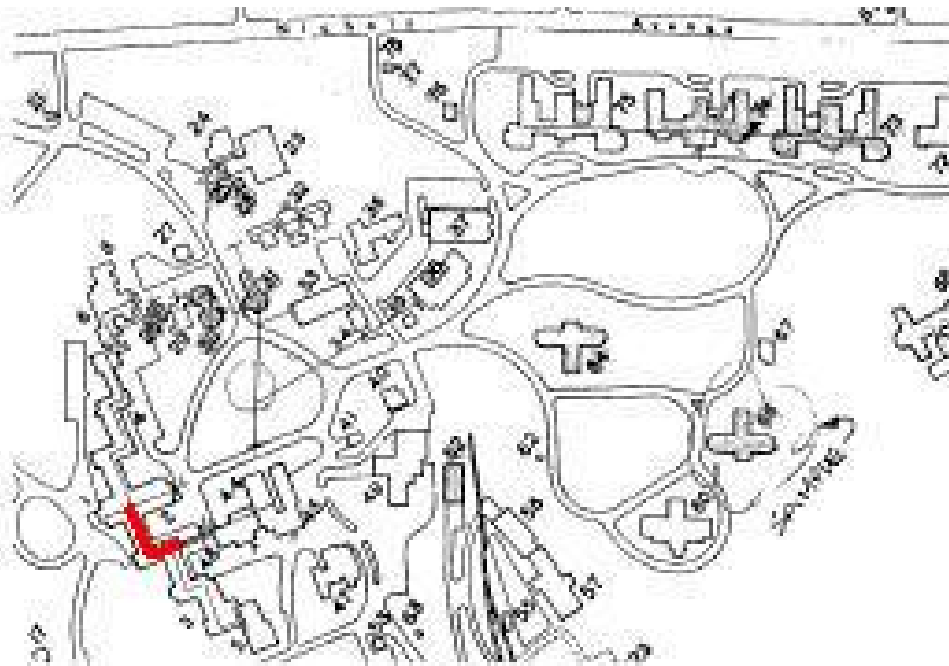
Inspection Date: 12/13/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	170 FT
Springline Width	N/A
Begin Building	1
End Building	3

Tunnel Height	N/A
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	1, 3

Tunnel connects the basement level of Buildings 1 & 2, Center Hall to the basement level of Building 3, West Wing.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 170 feet long and runs between Buildings 1 and 3. Building 1 is at the east end of the tunnel and Building 3 is at the west end. The tunnel walls are composed of brick and stone masonry and are in fair condition. Utilities within the tunnel at the time of inspection include steam, water, electrical, and communication (telephone). Minor problems at this time include several vertical cracks on the walls, moderate to heavy debris scattered on the floor, and deteriorated utilities. A more serious problem involves areas of deteriorated timber floor system above.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

1. Shore or replace deteriorated timber flooring above not yet repaired.

Routine Repairs:

1. Remove debris from floor, 10 CY.
2. Replace electric lines, 170 LF.
3. Replace lighting conduits and wiring, 170 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 1-3****INSPECTION DATE: 12/14/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	5
1. LINING	F
2. PORTALS	G
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER (Debris)	F
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER (Telephone)	P
7. OTHER	N
8. OTHER	N

59.1	Several minor vertical cracks on walls. Sections of timber flooring above have been replaced while other sections remain in a deteriorated state.
59.6	Moderate to heavy debris scattered throughout areas.
402.1,2,3,6	Moderate to heavy corrosion on utility pipes and conduits. Some sections of pipes, conduits, and wiring are sagging and hanging from ceiling.

PHOTOS



Photo 1: East portal



Photo 2: West portal



Photo 3: Looking east, east portal in distance; Note hanging electric and phone wires



Photo 4: Looking west; Note hanging conduits and wires



Photo 5: Looking west; Note new timber floor above and hanging utilities



Photo 6: Debris on floor



Photo 7: West portal, east face; Note vertical crack on south side



Photo 8: Debris on floor, looking west

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 1 & 4



WEST PORTAL



EAST PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

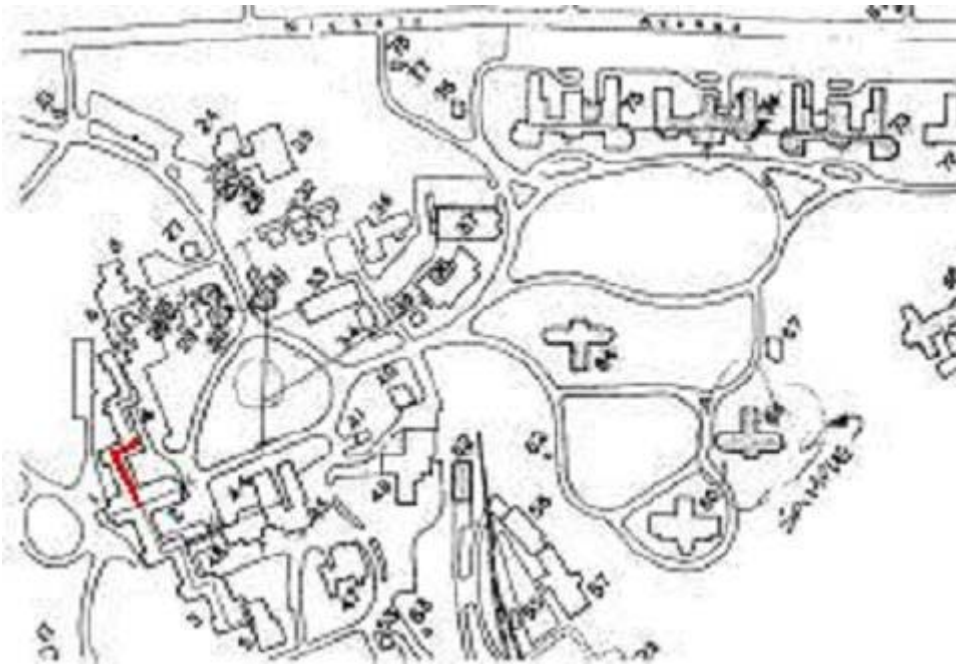
Inspection Date: 12/13/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	170 FT
Springline Width	N/A
Begin Building	1
End Building	4

Tunnel Height	N/A
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	1, 2

Tunnel connects the basement level of Buildings 1 & 2, Center Hall to the basement level of Building 4, East Wing.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 170 feet long and runs between Buildings 1 and 4. Building 4 is at the east end of the tunnel and Building 1 is at the west end. The tunnel lining is composed of brick and stone masonry and is in fair condition. Utilities within the tunnel at the time of inspection include steam, water, electrical, and communication (telephone). Minor problems at this time include debris scattered throughout floor and deteriorated utilities. A more serious problem involves areas of deteriorated timber floor system above.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

1. Shore or replace areas of deteriorated timber flooring not yet repaired.

Routine Repairs:

1. Remove debris from floor, 20 CY.
2. Replace electric lines, 170 LF.
3. Replace lighting conduits and wiring, 170 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 1-4****INSPECTION DATE: 12/13/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	5
1. LINING	F
2. PORTALS	G
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER (Debris)	P
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER (Telephone)	P
7. OTHER	N
8. OTHER	N

59.1	Sections of timber flooring above have been replaced while other sections remain in a deteriorated state.
59.6	Moderate to heavy debris scattered throughout floor in areas.
402.1,2,3,6	Moderate to heavy corrosion on pipes and conduits. Utilities are sagging and hanging from ceiling at east end of tunnel.

PHOTOS



Photo 1: West portal



Photo 2: East portal



Photo 3: General view of lining



Photo 4: Deteriorated timber floor system above;
Note new flooring in adjacent area



Photo 5: Heavy debris on floor



Photo 6: Unsupported and hanging utilities; Note debris on floor

TUNNEL INSPECTION REPORT

**ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 3 & 5**



WEST PORTAL



EAST PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

Inspection Date: 12/14/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	425.0 FT
Springline Width	6.0 FT
Begin Building	3
End Building	5

Tunnel Height	7.0 FT
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	3

Tunnel connects the basement level of Building 3, West Wing to the basement level of Building 5, Garfield.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 425 feet long by 6 feet wide and runs between Buildings 3 and 5. Building 3 is at the east end of the tunnel and Building 5 is at the west end. The tunnel lining is composed of brick, stone masonry, and timber and is in fair condition. Utilities within the tunnel at the time of inspection include water, steam, and electric; none of which were functioning. Minor problems at this time include debris accumulation and deteriorated utilities. A more critical problem involves areas of deteriorated timber floor system above, some of which is settling.

RECOMMENDATIONS**Critical Repairs:**

1. Shore or replace deteriorated and settled timber flooring above, 200 SF.

Priority Repairs:

1. Shore or replace rest of deteriorated timber flooring above not yet repaired.

Routine Repairs:

1. Remove debris accumulation, 50 CY.
2. Replace electric lines, 425 LF.
3. Replace lighting conduits and wiring, 425 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 3-5**
INSPECTION DATE: 12/14/05

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	5
1. LINING	F
2. PORTALS	G
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER (Debris)	F
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER (telephone)	P
7. OTHER	N
8. OTHER	N

59.1	Sections of timber flooring above have been replaced while other sections remain in a deteriorated state. One section of deteriorated timber flooring above is settling.
59.6	Minor to moderate debris scattered along floor. Heavy debris accumulation near west end of tunnel.
402.1,2,3	Moderate to heavy corrosion on pipes and conduits. Conduit near west end has an area of total section loss.
402.3,6	Conduits and wiring sagging and hanging from ceiling.

PHOTOS



Photo 1: West portal, bricked off



Photo 2: East portal



Photo 3: Deteriorated and settled timber flooring above



Photo 4: General view of tunnel, looking west from east portal



Photo 5: General view of tunnel deteriorated timber flooring above, looking west;
Note and corrosion on conduits and hanging wiring



Photo 6: Heavy debris on floor; Note hanging wiring



Photo 7: Heavy debris on floor; Note hanging pipe, conduits, and wiring



Photo 8: East portal of arch portion at west end of tunnel; Note heavy debris on floor



Photo 9: General view of lining, looking east from west portal



Photo 10: Corrosion on steam pipe, south wall



Photo 11: Corrosion on steam pipe in arch section of tunnel near west end



Photo 12: Corrosion with total section loss on conduit

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 3 & 46



NORTH PORTAL



SOUTH PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

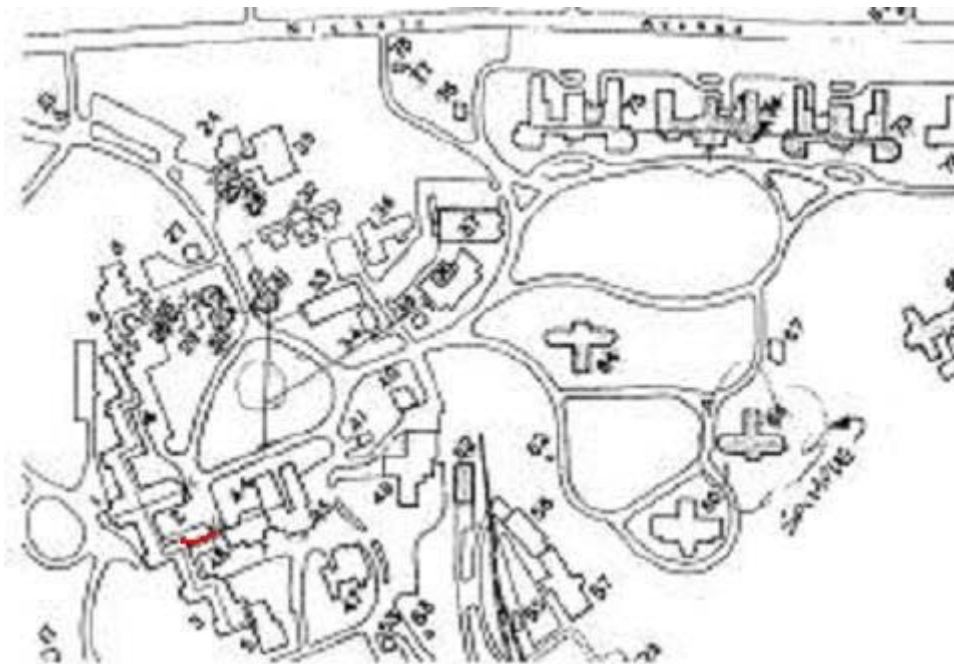
Inspection Date: 12/14/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	95.0 FT
Springline Width	N/A
Begin Building	3
End Building	46

Tunnel Height	N/A
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	3

Tunnel previously connected the basement level of Building 3, West Wing to the basement level of Building 46, Bakery. Currently the passage way at Building 46 is blocked off preventing access to the Bakery.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 95 feet long and runs between buildings 3 and 46. Building 3 is at the north end of the tunnel and building 46 is at the south end. The tunnel lining is composed of brick, stone masonry, and timber and is in good condition. Utilities within the tunnel at the time of inspection include steam, water, electrical and communication (telephone). Minor problems at this time include deteriorated utilities and minor debris on floor.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Replace electric lines, 95 LF.
2. Replace lighting conduits and wiring, 95 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 3-46****INSPECTION DATE: 12/14/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	7
1. LINING	G
2. PORTALS	G
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER (Debris)	F
7. OTHER	N
8. OTHER	N

59.6	Minor debris on floor.
402.1,2,3	Moderate corrosion on utility pipes
402.6	Corroded wires with kinked and sagging sections.

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER (Telephone)	P
7. OTHER	N
8. OTHER	N

PHOTOS



Photo 1: North portal



Photo 2: South portal



Photo 3: Looking north from south portal



Photo 4: Looking south toward south portal



Photo 5: Looking north toward north portal;
Note minor debris on floor



Photo 6: Blocked access way to Building 46

TUNNEL INSPECTION REPORT

**ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 4 & 6**



EAST PORTAL



WEST PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

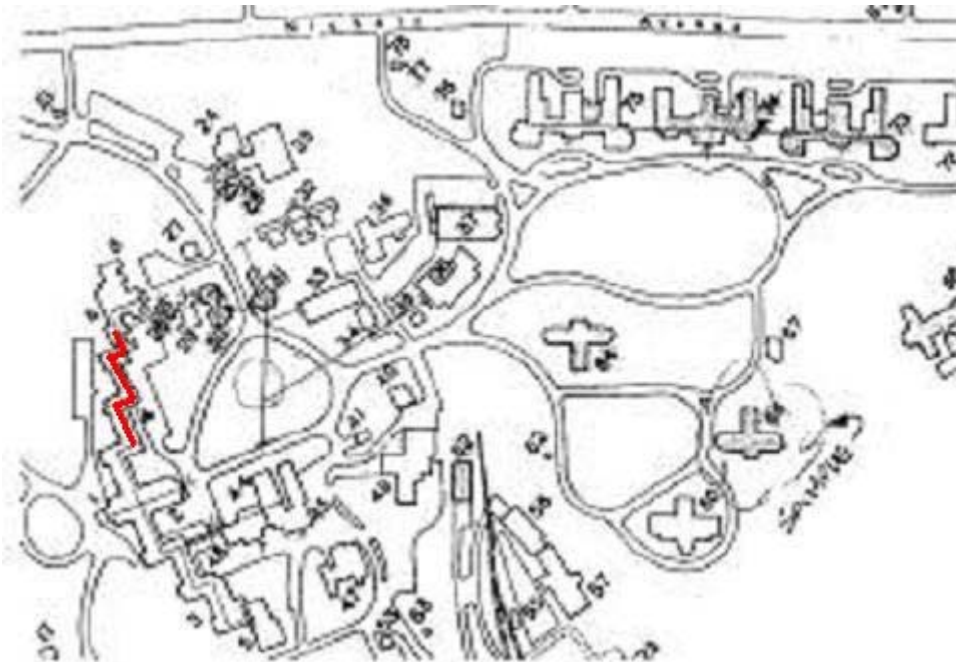
Inspection Date: 12/13/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick, Stone
Total Length	305 FT
Springline Width	N/A
Begin Building	4
End Building	6

Tunnel Height	N/A
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	1

Tunnel connects the basement level of Building 4, East Wing to the basement level of Building 6, Pine.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 305 feet long and runs between Buildings 4 and 6. Building 6 is at the east end of the tunnel and Building 4 is at the west end. The tunnel lining is composed of brick and stone rubble and is in good condition. Utilities within the tunnel at the time of inspection include water, steam, electric, and telephone; none of which were functioning. Minor problems at this time include light debris accumulation and deteriorated utilities.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Remove debris from floor, 5 CY.
2. Replace electric lines, 305 LF.
3. Replace lighting conduits and wiring, 305 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 4-6****INSPECTION DATE: 12/13/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	7
1. LINING	G
2. PORTALS	G
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER (debris)	F
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	7
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER (Telephone)	F
7. OTHER	N
8. OTHER	N

59.6	Minor debris on floor in areas throughout.
402.1,2,3	Moderate to heavy corrosion on pipes and conduits. Some pipes and conduits are unsupported and hanging from ceiling.
402.6	Telephone lines are loose from ceiling and hanging in areas.

PHOTOS



Photo 1: East portal



Photo 2: West portal



Photo 3: General view looking west from east portal; Note hanging wiring



Photo 4: General view looking west; Note debris on floor, hanging wiring, and corrosion on pipes



Photo 5: General view looking west



Photo 6: Debris on floor; Note hanging conduits



Photo 7: Corrosion on piping and conduits



Photo 8: Hanging pipe near west end; Note corrosion on piping and conduits

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 6 & 8



EAST PORTAL



WEST PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

Inspection Date: 12/13/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	110.0 FT
Springline Width	N/A
Begin Building	6
End Building	8

Tunnel Height	6.6 FT
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	8

Tunnel connects the basement level of Building 6, Pine to the basement level of Building 8, Willow. Currently access is permitted through the stairwell in Building 8; however, the original hallway that the rails entered at Building 8 has been closed with masonry block.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 110 feet long and runs between Buildings 6 and 8. Building 8 is at the east end of the tunnel and Building 6 is at the west end. The tunnel lining is composed of brick, timber, and concrete and is in fair condition. Utilities within the tunnel at the time of inspection include water, steam, electric, and telephone; none of which were functioning. Minor problems at this time include debris on floor and deteriorated utilities unsupported in areas.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Remove debris from floor, 5 CY.
2. Replace lighting conduits and wiring, 110 LF.
3. Replace electric lines, 110 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 6-8****INSPECTION DATE: 12/13/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	7
1. LINING	G
2. PORTALS	G
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER (Debris)	F
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER (telephone)	P
7. OTHER	N
8. OTHER	N

59.6	Minor to moderate debris scattered on floor.
402.1	Steam pipes are wrapped with exposed sections showing signs of moderate corrosion.
402.2,3	Heavy corrosion on water pipes and electrical conduits.
402.6	Phone wires loose from ceiling with loss of coating.
402.1,2,3,6	Utilities are loose and unsupported in areas.

PHOTOS



Photo 1: East portal; Note blocked off access way



Photo 2: West portal; Note hanging and unsupported utilities



Photo 3: Looking west from east portal;
Note minor debris and dampness on floor



Photo 4: Looking east; Note debris and sagging cable



Photo 5: Looking west toward west portal; Note debris and unsupported utilities



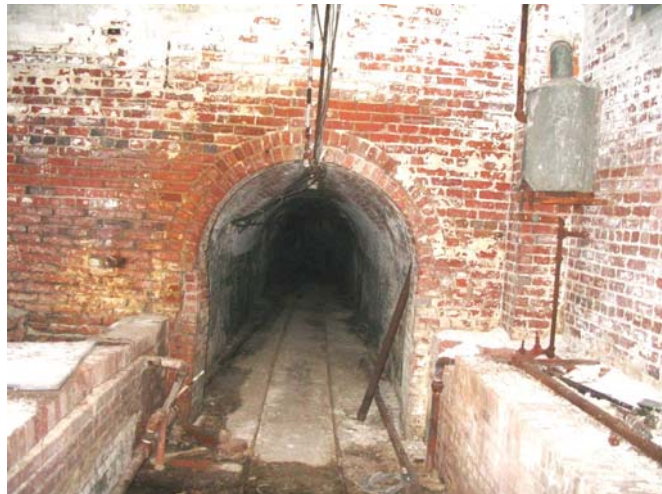
Photo 6: Looking south at access to Building 28

TUNNEL INSPECTION REPORT

**ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 6 & 28**



NORTH PORTAL



SOUTH PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

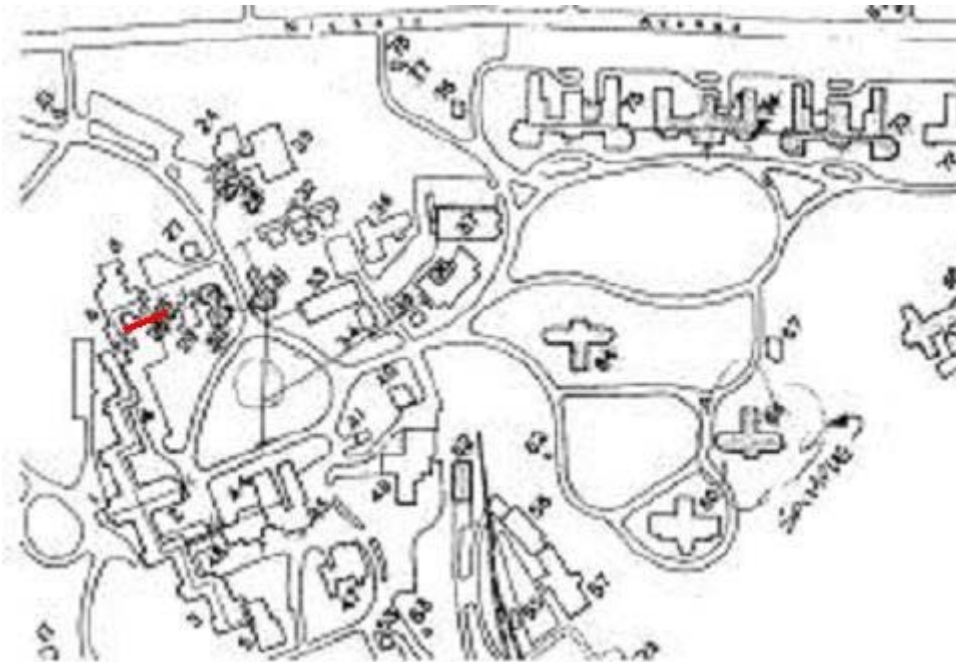
Inspection Date: 12/13/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	120.0 FT
Springline Width	6.0 FT
Begin Building	6
End Building	28

Tunnel Height	6.5 FT
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	28

Tunnel connects the basement level of Building 6, Pine to the basement level of Building 28, Linden. Currently access is permitted through the stairwell in Building 28.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 120 feet long by 6 feet wide and runs between Buildings 6 and 28. Building 28 is at the south end of the tunnel and Building 6 is at the north end. The tunnel lining is composed of brick and is in fair condition. Utilities within the tunnel at the time of inspection include water, electric, and telephone; none of which were functioning. Minor problems at this time include debris on the floor and deteriorated utilities.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Remove debris from floor, 5 CY.
2. Replace electric lines, 120 LF.
3. Replace lighting conduits and wiring, 120 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 6-28****INSPECTION DATE: 12/13/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	6
1. LINING	G
2. PORTALS	F
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER (debris)	F
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	N
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER (telephone)	P
7. OTHER	N
8. OTHER	N

59.2	Separated bricks along arch ring on west side of south portal.
59.6, 402.2	Minor to heavy debris on floor. Water utility on floor.
402.2,3,6	Moderate to heavy corrosion on pipes and conduits. Sections of electrical and phone wiring hanging from ceiling.

PHOTOS



Photo 1: North portal

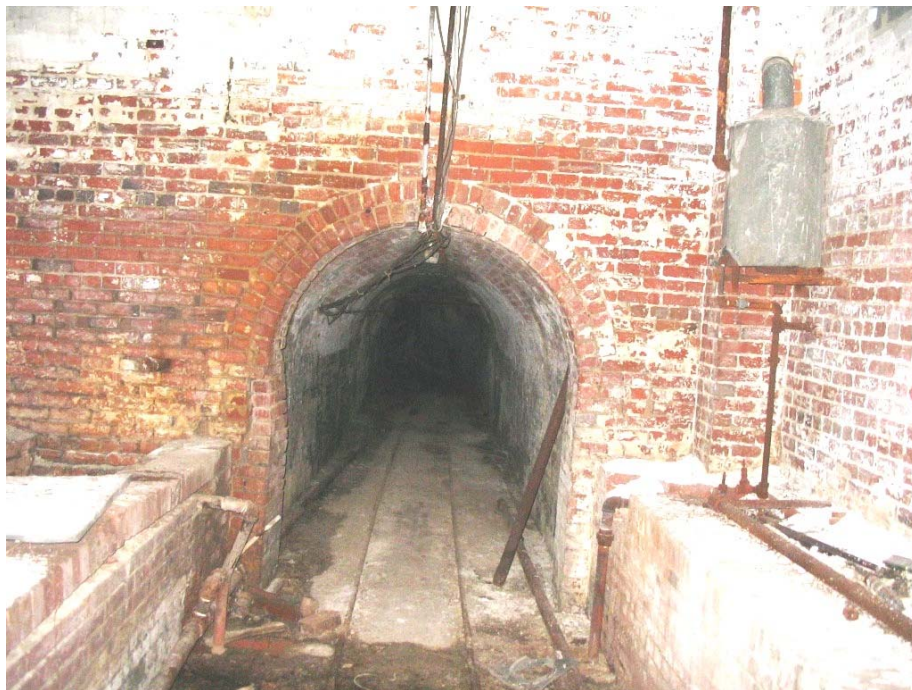


Photo 2: South portal



Photo 3: Looking north at south portal from Building 28



Photo 4: General view of lining, looking north from south portal



Photo 5: Deteriorated mortar joints on west wall of south portal, looking north



Photo 6: Deteriorated mortar joints on west wall of south portal, looking south



Photo 7: Missing bricks at vault connecting to Building 6



Photo 8: Debris on floor near entrance to Building 6



Photo 9: Corrosion on conduits; Note damaged light fixture



Photo 10: Hanging telephone and electric wires at north end of arch;
Note corrosion on conduit

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL UNDER BUILDING 8



EAST PORTAL



WEST PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

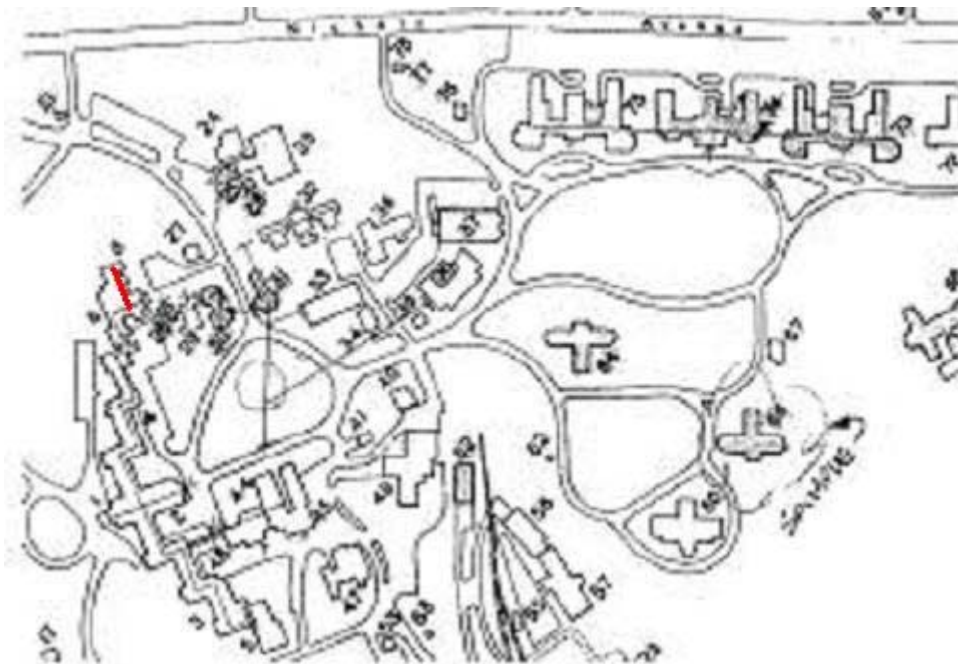
Inspection Date: 12/13/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	80.0 FT
Springline Width	N/A
Begin Building	8
End Building	8

Tunnel Height	N/A
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	8

Tunnel previously connected to the basement level of Building 6, Pine to the basement level of Building 8, Willow. Currently, a masonry block wall seals off the direct connection to Tunnel 6-8. Now Tunnel 8-8 primarily services the basement of building 8.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 80 feet long and runs below Building 8. Building 6 is to the west of the tunnel below Building 8. The tunnel lining is composed of brick, masonry block, concrete, and timber and is in good condition. Utilities within the tunnel at the time of inspection include water, steam, electric, and telephone; none of which were functioning. Minor problems at this time include debris on the floor and deteriorated utilities.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Remove debris from floor, 2 CY.
2. Replace electric lines, 80 LF.
3. Replace lighting conduits and wiring, 80 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 8-8****INSPECTION DATE: 12/13/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	7
1. LINING	G
2. PORTALS	G
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER (debris)	F
7. OTHER	N
8. OTHER	N

59.6	Minor to moderate debris on floor.
402.1,2,3	Moderate corrosion on pipes and conduits.
402.6	Phone wiring hanging in areas.

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER (telephone)	P
7. OTHER	N
8. OTHER	N

PHOTOS

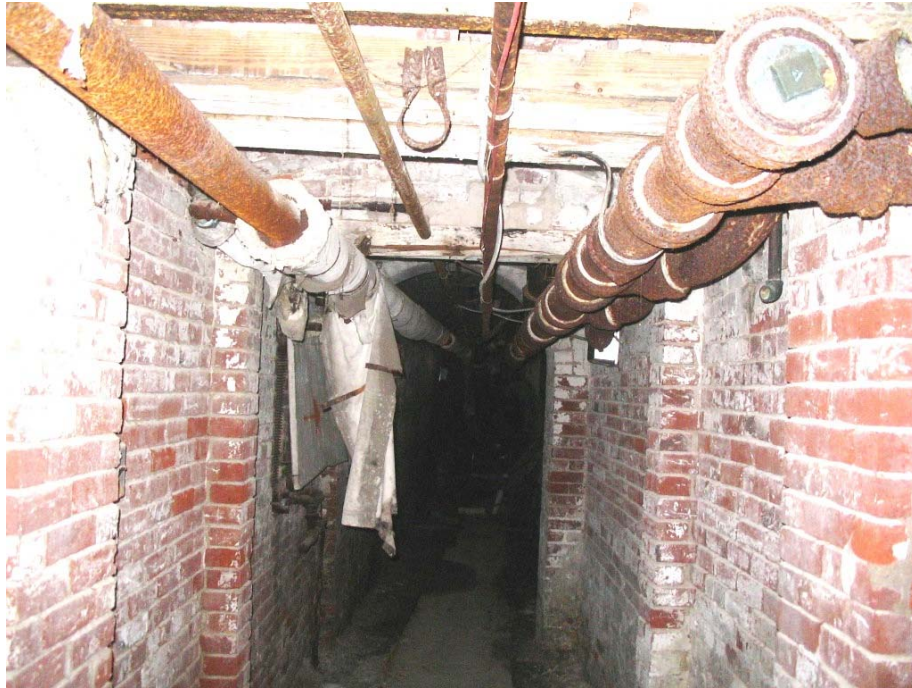


Photo 1: East portal



Photo 2: West portal, east side

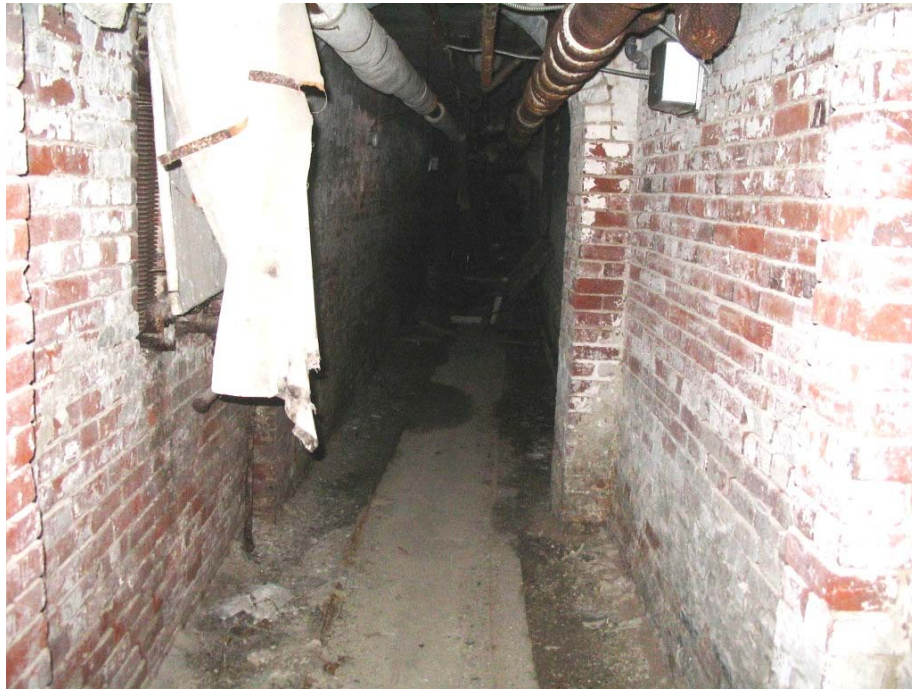


Photo 3: General view of lining, looking east



Photo 4: East end of rails; Note debris on floor and hanging telephone wire



Photo 5: Debris on floor, looking east from west portal



Photo 6: Damage light fixture; Note corrosion on pipe and conduits

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 25 & 26



EAST PORTAL



WEST PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

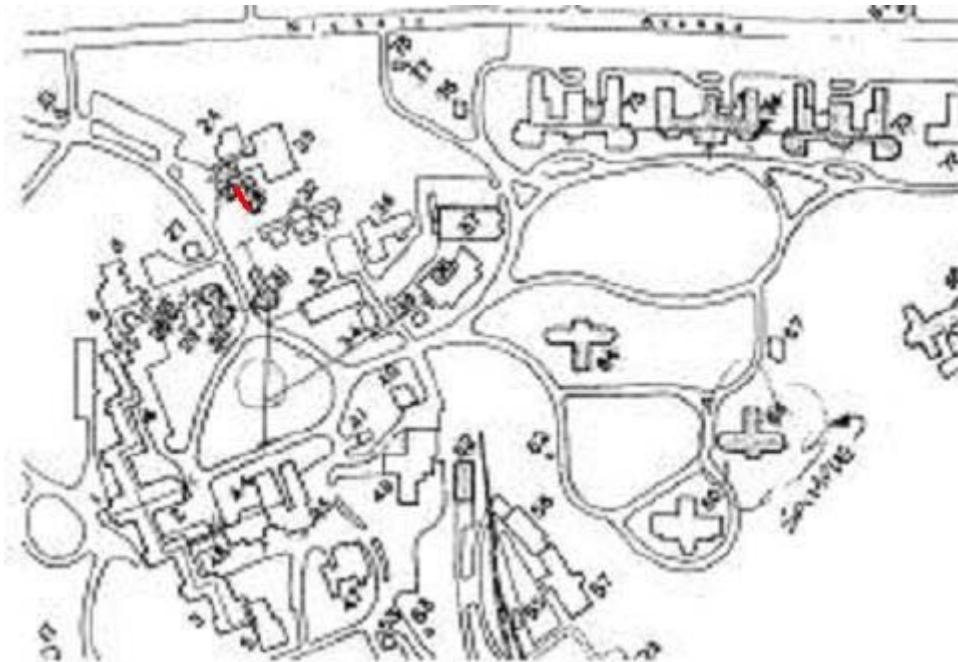
Inspection Date: 12/14/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	N/A
Springline Width	N/A
Begin Building	25
End Building	26

Tunnel Height	N/A
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	N/A

Tunnel previously connected the basement level of Building 25, Allison A to the basement level of Building 26, Allison B. Currently a masonry block wall prevents access in the basement of Building 25, while the stairwell is bolted shut inside Building 26. No other entries were found.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel runs between Buildings 25 and 26. Building 25 is at the east end of the tunnel and Building 26 is at the west end. The tunnel could not be accessed due to a bolted shut door at Building 26 and a blocked in doorway at Building 25.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

None.

FIELD INSPECTION REPORT**STRUCTURE NO. 25-26****INSPECTION DATE: 12/14/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	N
1. LINING	N
2. PORTALS	N
3. FLOOR	N
4. DRAINS & DRAINAGE	N
5. VENTILATION	N
6. OTHER	N
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	N
1. STEAM	N
2. WATER	N
3. ELECTRICAL	N
4. GAS	N
5. FIBER OPTIC	N
6. OTHER	N
7. OTHER	N
8. OTHER	N

59, 402	Could not access tunnel due to blocked in and bolted entrances.

PHOTOS

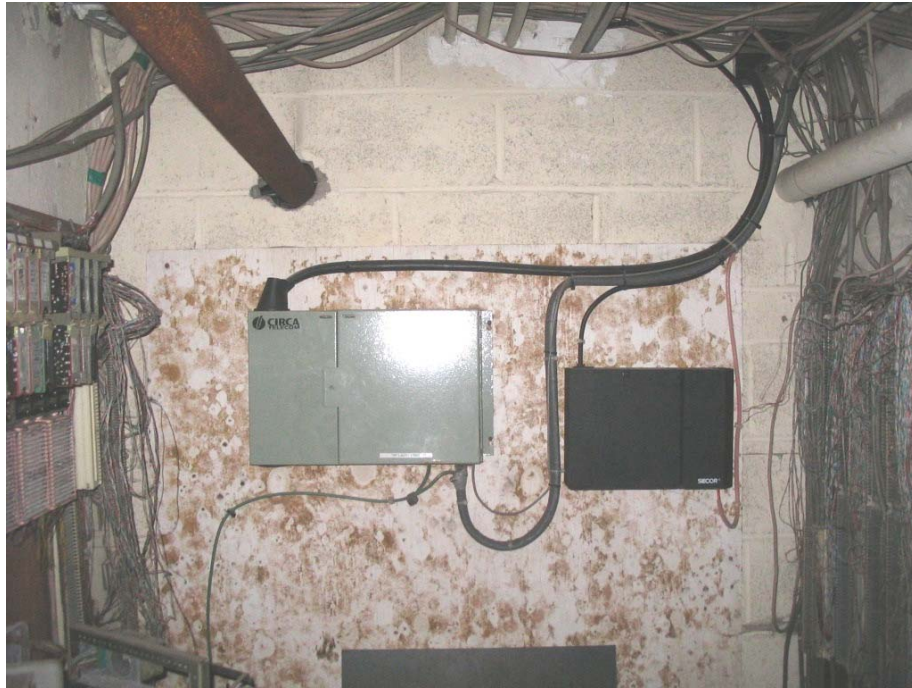


Photo 1: East portal; Note blocked in entrance



Photo 2: West portal; Note bolted shut door

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 28 & 29



NORTH PORTAL



SOUTH PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

Inspection Date: 12/13/05

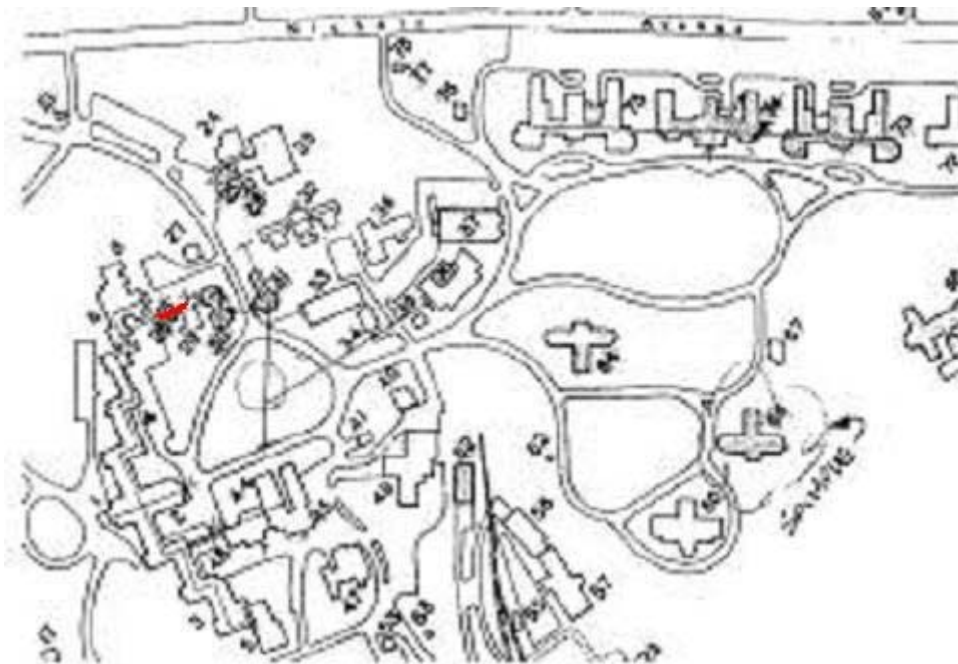
TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	65.0 FT
Springline Width	5.0 FT
Begin Building	28
End Building	29

Tunnel Height	6.4 FT *
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	28

Tunnel connects the basement level of Building 28, Linden to the basement level of Building 29, Holly. Currently, access is permitted through the stairwell in Building 28.

* 4.75 FT vertical clearance below pipe across tunnel near south portal

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 65 feet long by 5 feet wide and runs between Buildings 28 and 29. Building 28 is at the north end of the tunnel and Building 29 is at the south end. The tunnel lining is composed of brick and is in fair condition. Utilities within the tunnel at the time of inspection include water, steam, electric, and telephone; none of which were functioning. Minor problems at this time include deteriorated mortar at both portals and deteriorated utilities.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Replace electric lines, 65 LF.
2. Replace lighting conduits and wiring, 65 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 28-29****INSPECTION DATE: 12/13/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	6
1. LINING	F
2. PORTALS	F
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER	N
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER (telephone)	P
7. OTHER	N
8. OTHER	N

59.1	Minor loss of mortar in several areas throughout. Minor water seepage through west wall near north and south portals.
59.2	Moderate loss of mortar around top of arch ring at north and south portals.
59.3	Piping and minor debris on floor.
402.1,2,3,6	Moderate corrosion on pipes and conduits. Exposed wiring on conduit at south portal. Sagging and corroded wiring in areas.

PHOTOS



Photo 1: North portal



Photo 2: South portal



Photo 3: Looking north from Building 29



Photo 4: General view of lining, looking toward north portal;
Note water seepage on west wall



Photo 5: Water seepage through west wall below pipe near south portal;
Note sagging electric line and corrosion on conduits



Photo 6: Deteriorated mortar between bricks around top of arch, north portal;
Note corrosion on conduits



Photo 7: Deteriorated mortar between bricks around top of arch, south portal



Photo 8: Corrosion on conduits at south portal; Note exposed wires



Photo 9: Corrosion on conduits



Photo 10: Debris and piping on floor, looking north from south portal

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 29 & 30



NORTH PORTAL



SOUTH PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

Inspection Date: 12/13/05

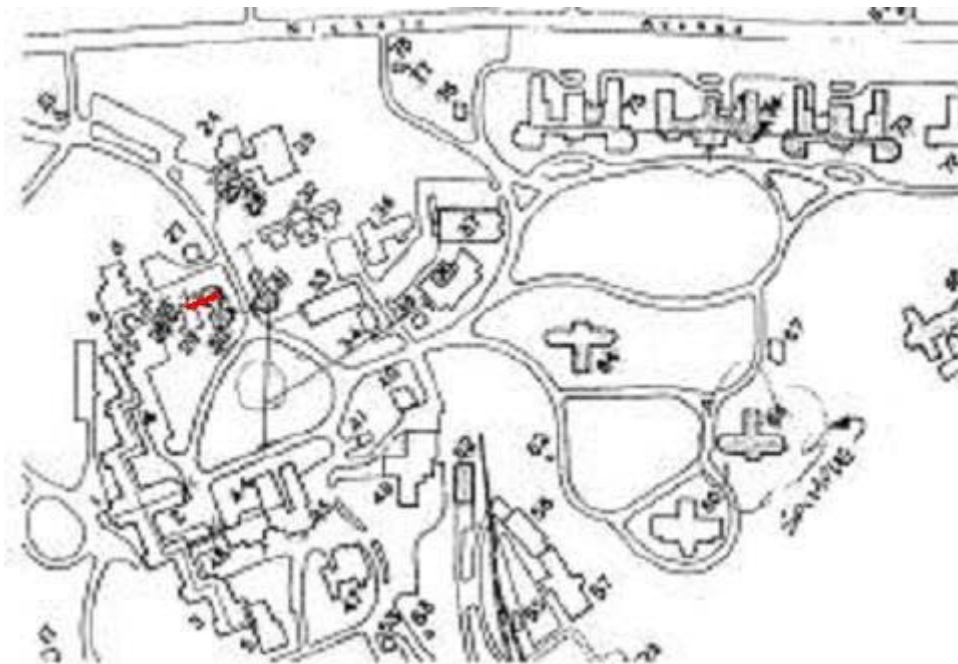
TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	55.0 FT
Springline Width	6.0 FT *
Begin Building	29
End Building	30

Tunnel Height	6.5 FT
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	30

Tunnel connects the basement level of Building 29, Holly to the basement level of Building 30, The Detached Nurses Home. Currently access is permitted through the stairwell in Building 30.

* width limited to 4 FT at south portal and 5 FT at north portal

LOCATION MAP

EXECUTIVE SUMMARY

This tunnel is 55 feet long by 6 feet wide and runs between Buildings 29 and 30. Building 29 is at the north end of the tunnel and Building 30 is at the south end. The tunnel lining is composed of brick and is in fair condition. Utilities within the tunnel at the time of inspection include water, steam, electric, and telephone; none of which were functioning. Minor problems at this time include deteriorated utilities, debris on the floor, and a tripping hazard due to a concrete cap over a utility across the floor.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Replace electric lines, 55 LF.
2. Replace lighting conduits and wiring, 55 LF.
3. Remove debris from floor, 2 CY.

FIELD INSPECTION REPORT

STRUCTURE NO. 29-30
INSPECTION DATE: 12/13/05

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	6
1. LINING	G
2. PORTALS	G
3. FLOOR	F
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER	N
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER (telephone)	P
7. OTHER	N
8. OTHER	N

59.3	Floor is covered with dirt and debris. Floor is out of level in some areas. Utility concrete cap passing across tunnel floor creates a tripping hazard.
402.1,2,3,6	Moderate to heavy corrosion on pipes and conduits. Sagging wires in several locations.

PHOTOS



Photo 1: North portal



Photo 2: South portal; Note utility concrete cap across floor



Photo 3: Debris on floor and corroded pipe along west wall;
Note utility concrete cap across floor



Photo 4: Corrosion on pipe and conduits along ceiling;
Note corrosion on pipe crossing below conduits near south portal



Photo 5: Open junction box on conduit at north portal



Photo 6: Damaged light fixture on east wall

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 31 & 32



WEST PORTAL



EAST PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

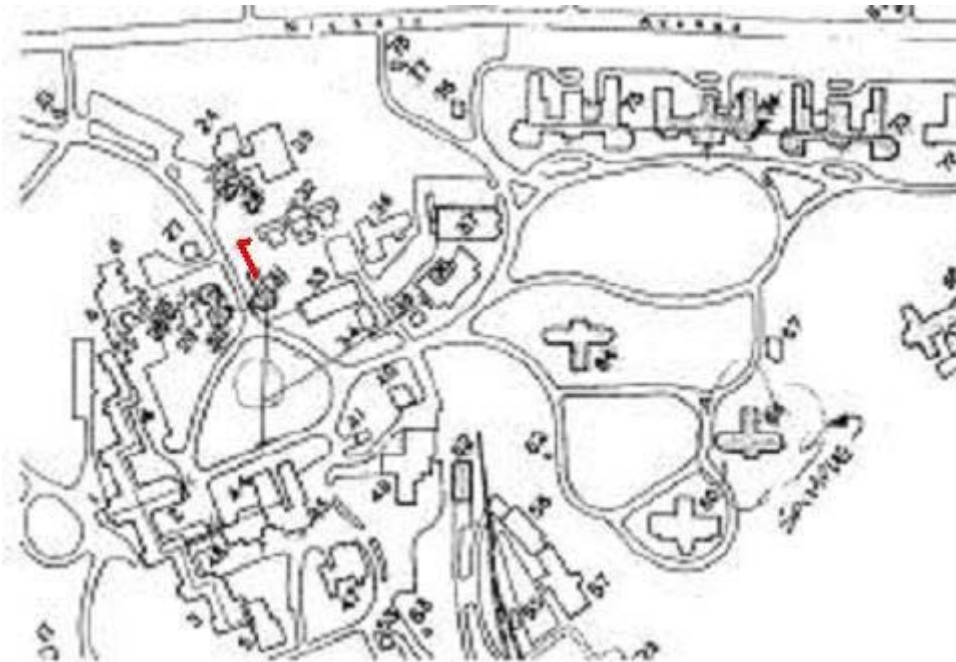
Inspection Date: 12/12/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	60.0 FT
Springline Width	6.0 FT
Begin Building	31
End Building	32

Tunnel Height	7.0 FT
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	31

Tunnel previously connected the basement level of Building 31, Atkins Hall and the basement level of Building 32, Relief. Currently, the stairwell outside of Building 44 is bricked off eliminating access. Access is gained from Building 31.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 60 feet long by 6 feet wide and runs between Building 31 and Building 32. Building 32 is at the east end of the tunnel and building 31 is at the west end. The tunnel lining is composed of brick and is in fair condition. Utilities within the tunnel at the time of inspection include water, steam, and electric; none of which were functioning. Minor problems at this time include deteriorated mortar joints in lining, busted bricks at north portal for routing pipes, vertical crack at south portal, and corrosion of utility pipes and conduits.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Replace electrical lines, 60 LF.
2. Replace lighting conduit and wiring, 60 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 31-32**
INSPECTION DATE: 12/12/05

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	6
1. LINING	F
2. PORTALS	F
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER	N
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER	N
7. OTHER	N
8. OTHER	N

59.1	Minor to moderate deterioration of brick lining mortar joints.
59.2	Vertical crack through bricks on east side of south portal. Busted bricks for water pipes routing through north portal.
402.1,2	Steam and water pipes have moderate to heavy corrosion. Steam pipe is supported by timber shoring at south portal.
402.3	Electrical and lighting conduits have moderate to heavy corrosion.

PHOTOS



Photo 1: West portal in basement of Building 31, Atkins Hall



Photo 2: East portal near Building 32, Relief



Photo 3: General view looking east from west portal

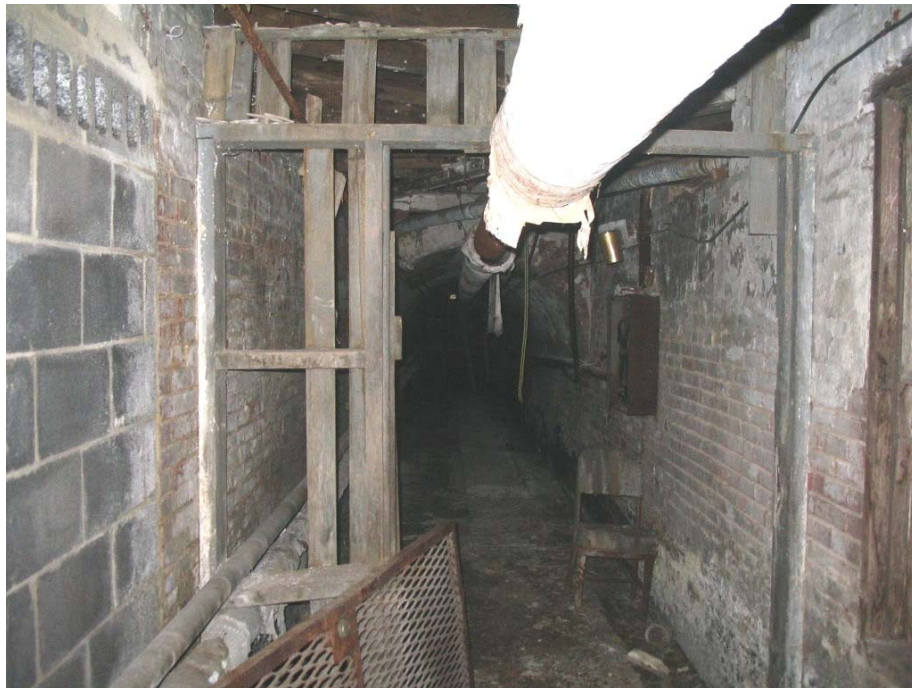


Photo 4: General view looking west toward east portal



Photo 5: Vertical crack in bricks on east side of south portal



Photo 6: Busted bricks for routing water pipes through north portal



Photo 7: Corrosion on steam and water pipes at west portal;
Note timber support below steam pipe



Photo 8: Typical corrosion on lighting conduit

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 31 & 33



NORTH PORTAL



SOUTH PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

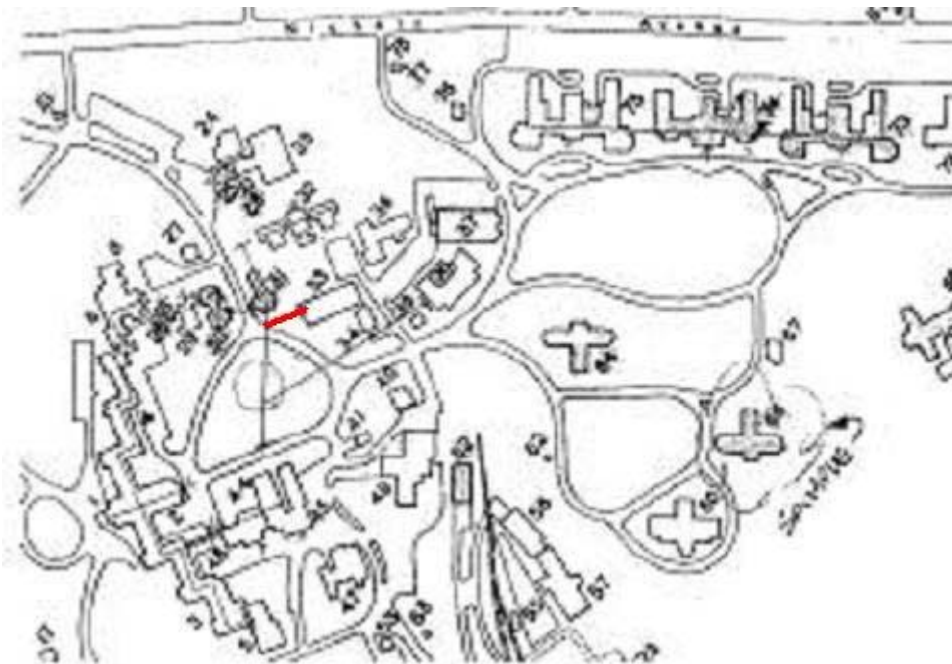
Inspection Date: 12/12/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	75.0 FT
Springline Width	6.0 FT
Begin Building	31
End Building	33

Tunnel Height	7.0 FT
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	31

Tunnel connects between tunnel 31-44 and the basement level of Building 33, The Detached Dining Hall. Currently the stairwell outside of Building 44 is bricked off eliminating access. Access is also blocked into Building 33.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 75 feet long by 6 feet wide and runs between tunnel 31-44 and Building 33. Tunnel 31-44 is at the north end of the tunnel and Building 33 is at the south end. The tunnel lining is composed of brick and is in fair condition. Utilities within the tunnel at the time of inspection include water, steam, and electric; none of which were functioning. Minor problems at this time include deteriorated mortar joints in the lining, chipped bricks at the north portal, and deteriorated utilities throughout.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Replace electrical lines, 75 LF.
2. Replace lighting conduits and wiring, 75 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 31-33****INSPECTION DATE: 12/12/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	6
1. LINING	F
2. PORTALS	F
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER	N
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER	N
7. OTHER	N
8. OTHER	N

59.1	Minor deterioration of mortar joints throughout.
59.2	Chipped bricks along edge of north portal due to routing of steam pipe. South portal is closed with doorways nailed shut.
402.1,2	Moderate corrosion of steam and water lines.
402.3	Electrical and lighting wires are draped along walls.

PHOTOS



Photo 1: North portal; Note chipped bricks



Photo 2: South portal; Note downed and sagging electrical lines



Photo 3: Downed wiring at north end of tunnel, junction with tunnel 31-44



Photo 4: Corrosion on steam and water pipes, north portal

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 31 & 38



NORTH PORTAL



SOUTH PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

Inspection Date: 12/12/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	640.0 FT
Springline Width	6.0 FT
Begin Building	T-31-44
End Building	38

Tunnel Height	7.0 FT
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	31

Tunnel connects between Tunnel 31-44 and an intersection with three steam pipe chases, south of the basement level of Building 38, Hagen Hall. Currently, the stairwell outside of Building 44 is bricked off eliminating access. There is also an old elevator shaft from the tunnel to Building 34.

LOCATION MAP

EXECUTIVE SUMMARY

This tunnel is 640 feet long by 6 feet wide and runs between tunnel 31-44 at the north end and building 38 at the south end. The tunnel lining is composed of brick and is in fair condition. Utilities within the tunnel at the time of inspection include water, steam, and electric; none of which were functioning. Minor problems at this time include minor deterioration of the brick lining mortar joints, corrosion of the utility pipes, deteriorated lighting conduits and wiring, downed electric lines, and scattered debris on the floor.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Remove debris from floor, 20 CY.
2. Replace electric lines, 640 LF.
3. Replace lighting conduits and wiring, 640 LF.
4. Repair water leak through lining near south end, Lump Sum.

FIELD INSPECTION REPORT

STRUCTURE NO. 31-38
INSPECTION DATE: 12/12/05

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	6
1. LINING	F
2. PORTALS	F
3. FLOOR	F
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER	N
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. OTHER	N
7. OTHER	N
8. OTHER	N

59.1	Minor mortar deterioration throughout brick lining with chipped or missing bricks in several locations.
59.3	Moderate to heavy debris scattered along the floor.
59.4	Shallow ponding water at south end near large steam pipes, but water appears to be draining out of tunnel.
402.1,2	Light to moderate corrosion on steam and water pipe lines. Sections of the water lines are sagging due to lack of support or wire hangers.
402.3	Electric lines are sagging and down in many areas along the west wall. The lighting conduit along the ceiling has heavy corrosion throughout with exposed wiring.

PHOTOS



Photo 1: North Portal



Photo 2: South Portal



Photo 3: General view looking north from Building 34; Note downed electric lines



Photo 4: Typical deteriorated mortar joints in lining; Note chipped and missing ceiling brick



Photo 5: Chipped bricks on ceiling around vent hole



Photo 6: General view of elevator shaft to Building 34, east side



Photo 7: General view of storage room across from elevator to Building 34, west side



Photo 8: General view, looking south from Building 34



Photo 9: Damaged timber gate, 20' south of north portal



Photo 10: Typical debris on floor, looking north from Building 34



Photo 11: Water running and draining along floor near south end



Photo 12: Vent to tunnel, Building 34 in background



Photo 13: Vent to tunnel near Building 34



Photo 14: Utility tunnel from east wall near Building 34 to Building 36;
Note corrosion on steam and water lines



Photo 15: Rusty utility pipes and downed electric lines adjacent to tunnel to Building 36; Note debris on floor



Photo 16: Water pipe hanging by wire from rusted pipe; Note sag in water pipe



Photo 17: Moderate rust on pipe; Note water line suspended by wire



Photo 18: Steam pipe over north portal



Photo 19: General view of rusted valves and piping, north of tunnel to Building 36



Photo 20: Rusted valve and piping at Building 38



Photo 21: Disconnected 4" diameter copper pipe



Photo 22: Corrosion on steam pipes at south end



Photo 23: Heavy corrosion on lighting conduit; Note exposed wiring at light fixture



Photo 24: General view of downed lighting

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 31 & 44



EAST PORTAL



WEST PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

Inspection Date: 12/12/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	405.0 FT
Springline Width	6.0 FT
Begin Building	31
End Building	44

Tunnel Height	7.0 FT
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	31

Tunnel previously connected the basement level of Building 31, Atkins Hall to the basement level of Building 44, The Old Storeroom. Currently the stairwell outside of Building 44 is bricked off eliminating access. Tunnel is accessed from Building 31.

LOCATION MAP

EXECUTIVE SUMMARY

This tunnel is 405 feet long by 6 feet wide and runs between buildings 31 and 44. Building 31 is at the east end of the tunnel and building 44 is at the west end. The tunnel lining is composed of brick and is in fair condition. Utilities within the tunnel at the time of inspection include water, steam, and electric; none of which were functioning. Minor problems at this time include minor deterioration of the brick lining mortar joints, deteriorated floor at the west end, corrosion of the utility pipes, deteriorated lighting conduits and wiring, sagging electric and telephone lines, and minor debris on the floor.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Repair undermined brick floor at west end of tunnel, 50 SF.
2. Replace lighting conduits and wiring, 405 LF.
3. Repair water leak through north wall, Lump Sum.
4. Remove debris from floor, 5 CY.

FIELD INSPECTION REPORT**STRUCTURE NO. 31-44****INSPECTION DATE: 12/12/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	6
1. LINING	F
2. PORTALS	F
3. FLOOR	F
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER	N
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. TELEPHONE	P
7. OTHER	N
8. OTHER	N

59.1	Minor deterioration of mortar joints in brick lining.
59.2	Chipped bricks at portals due to routing of pipes.
59.3	Moderate erosion and undermining of brick floor at west end (corner below Building 44). Minor debris on floor.
59.4	Water draining through north wall near mid-length of tunnel and draining out through floor.
402.1,2	Steam and water utilities have moderate to heavy corrosion.
402.3,6	Electrical lines for lighting and telephone cables are sagging. Lighting conduit has moderate corrosion.

PHOTOS



Photo 1: East portal at basement of Building 31, Atkins Hall

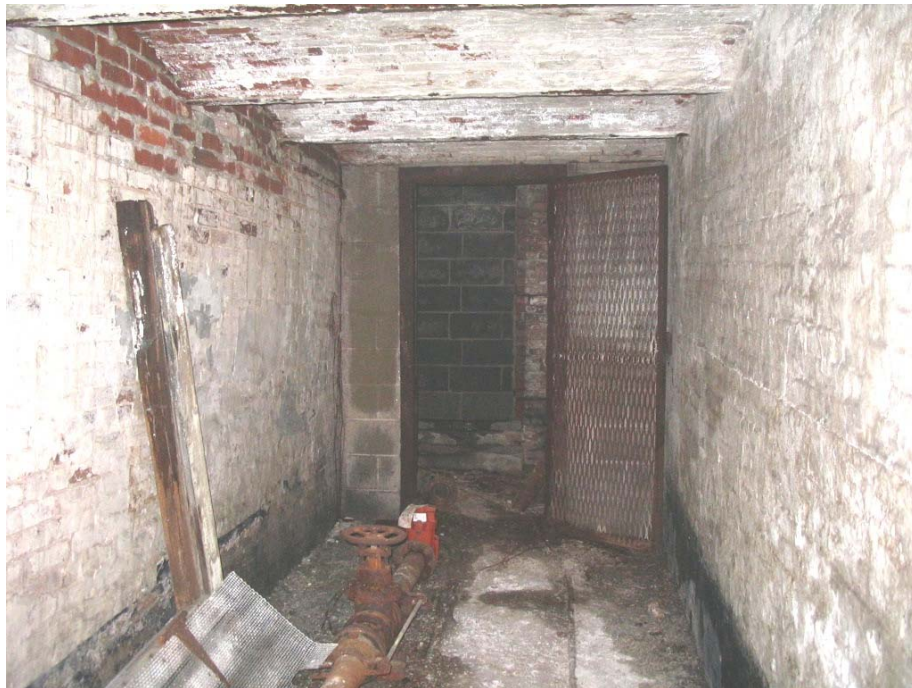


Photo 2: West portal at basement of Building 44, Old Storeroom;
Note blocked stairwell to Building 44



Photo 3: General view looking east from elbow below Building 44;
Note debris on floor and corrosion on pipes



Photo 4: General view near west end; Note sagging cables



Photo 5: General view of arched ceiling near west end of tunnel



Photo 6: Detail view of arched ceiling near west end of tunnel



Photo 7: Water entering north wall through galvanized pipe,
west of tunnel 31-38 north portal



Photo 8: Typical support for telephone cable, south wall

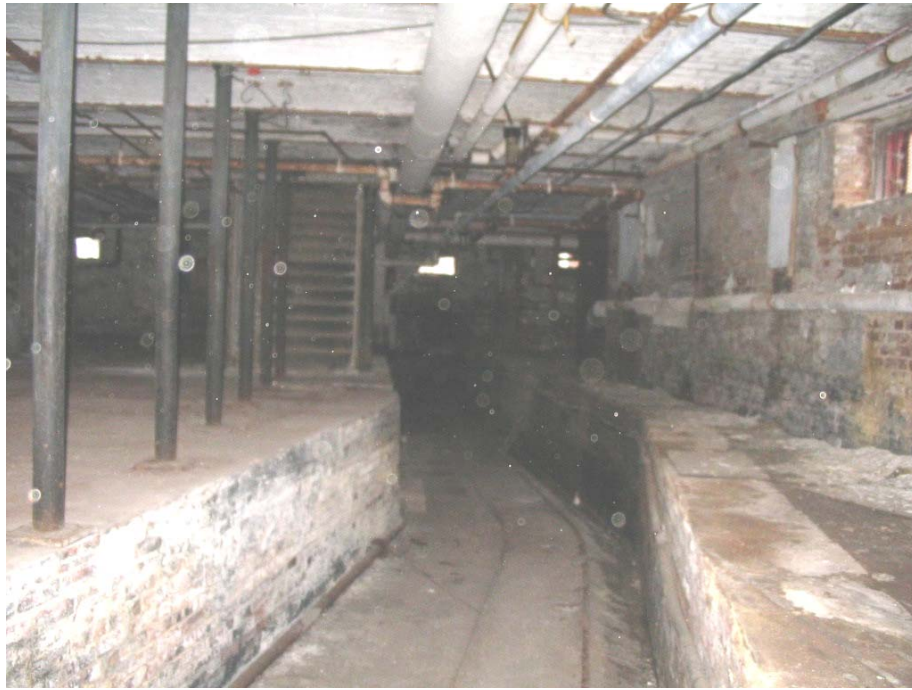


Photo 9: General view looking west toward east portal in basement of Building 31, Atkins Hall



Photo 10: Blocked stairwell to west end of tunnel

TUNNEL INSPECTION REPORT

**ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL UNDER BUILDING 32**



NORTH PORTAL



SOUTH PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

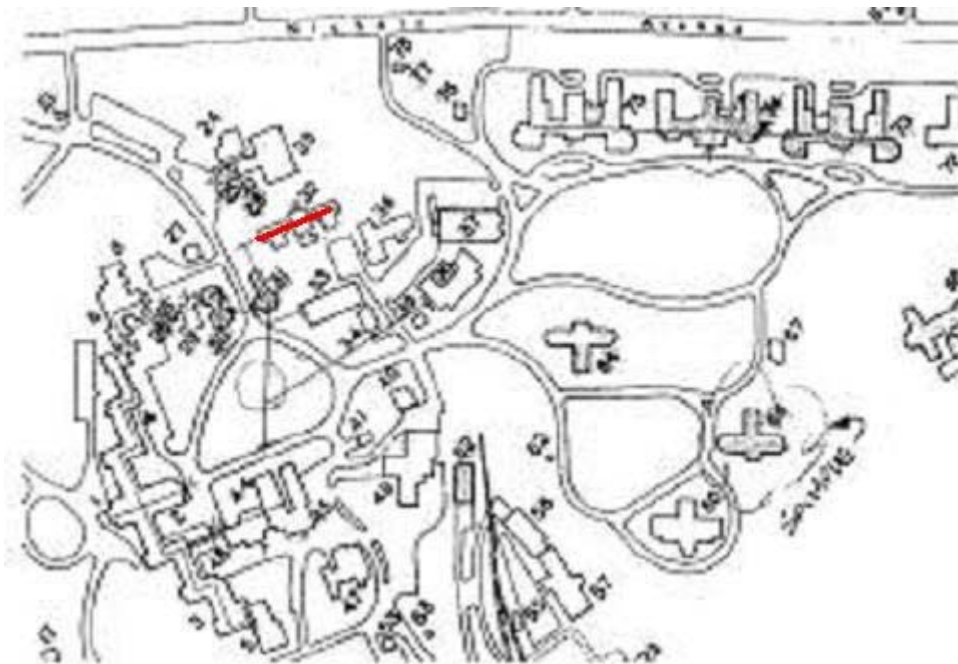
Inspection Date: 12/12/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	200 FT
Springline Width	N/A
Begin Building	32
End Building	32

Tunnel Height	N/A
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	31

Tunnel consists of basement rooms below Building 32, Relief.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 200 feet long and consists of connected rooms beneath Building 32. Building 32 is above the tunnel and runs from north to south. The walls are composed of brick and are in fair condition. Utilities within the rooms at the time of inspection include water, steam, and electric; none of which were functioning. Some of the track system has been concreted over.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Remove debris from floor, 1 CY.

FIELD INSPECTION REPORT**STRUCTURE NO. 32-32****INSPECTION DATE: 12/12/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	7
1. LINING	G
2. PORTALS	G
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER	N
7. OTHER	N
8. OTHER	N

59.3	Remnants of tile flooring covering sections of concreted over track bed. Minor debris on floor.

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	7
1. STEAM	G
2. WATER	G
3. ELECTRICAL	G
4. GAS	N
5. FIBER OPTIC	N
6. OTHER	N
7. OTHER	N
8. OTHER	N

PHOTOS



Photo 1: North portal



Photo 2: South Portal



Photo 3: General view looking north



Photo 4: Remnants of tile floor covering track bed

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 72 & 73



NORTH PORTAL



SOUTH PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

Inspection Date: 12/14/05

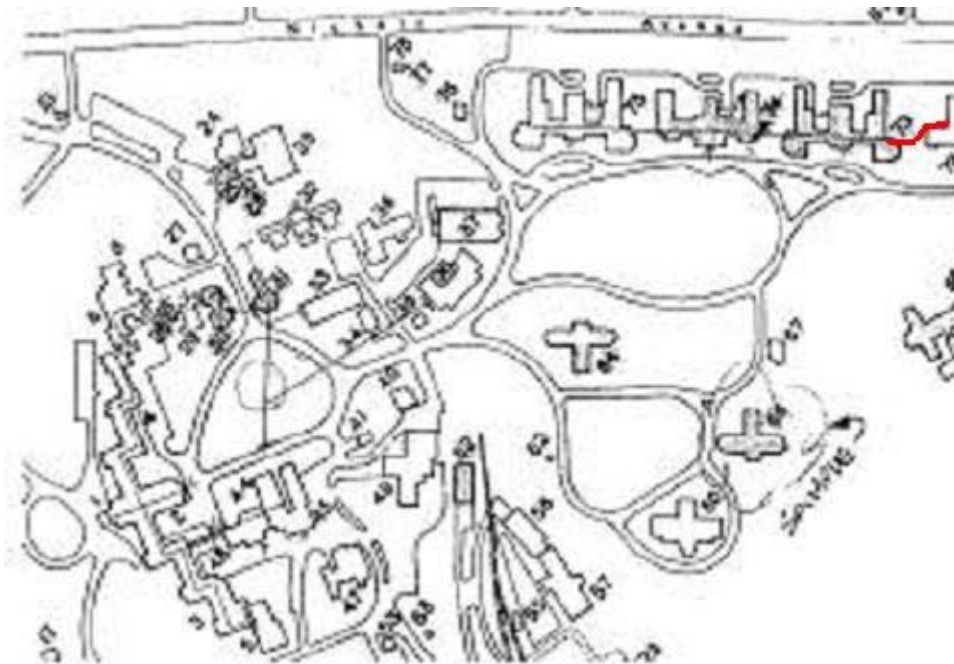
STRUCTURE NO. 72-73
INSPECTION DATE: 12/14/05

TUNNEL IDENTIFICATION AND DESCRIPTION	
---------------------------------------	--

Tunnel Height	6.3 FT *
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	73

* 5.1 FT vertical clearance below encased pipe near south portal

LOCATION MAP



Page 1 of 7

EXECUTIVE SUMMARY

This tunnel is 275 feet long by 5.4 feet wide and runs between Buildings 72 and 73. Building 72 is at the south end of the tunnel and Building 73 is at the north end. The tunnel lining is composed of brick and concrete and is in good condition. Utilities within the tunnel at the time of inspection include water, steam, and electric; none of which were functioning. Minor problems at this time include several cracks on walls and ceiling, undermined area of floor near north end, and deteriorated utilities.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Repair electrical conduit at kink in tunnel, 2 LF.
2. Repair undermined area of floor, 50 SF.

FIELD INSPECTION REPORT**STRUCTURE NO. 72-73****INSPECTION DATE: 12/14/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	6
1. LINING	G
2. PORTALS	G
3. FLOOR	F
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER	N
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	F
4. GAS	N
5. FIBER OPTIC	N
6. OTHER (telephone)	P
7. OTHER	N
8. OTHER	N

59.1	Minor vertical cracks on walls and transverse cracks on ceiling.
59.3	Undermined area of floor near north end.
402.1,2	Moderate rust on pipes.
402.3	Total section loss on conduit at kink in tunnel (about 140 ft from south end). Minor corrosion along conduits. Old conduits with exposed open junction boxes exist in wall.
402.6	Phone wires are cut.

PHOTOS



Photo 1: North portal, south side



Photo 2: South portal



Photo 3: Sealed access doorway at stairway into Building 72



Photo 4: Vertical Cracking on walls and transverse cracking on ceiling



Photo 5: Corrosion on utility pipes



Photo 6: Deteriorated conduit with total section loss; Note exposed wires



Photo 7: Open junction boxes in wall for old electrical conduits



Photo 8: Corrosion on unwrapped portion of pipe

TUNNEL INSPECTION REPORT

**ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 73 & 74**



NORTH PORTAL



SOUTH PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

Inspection Date: 12/14/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	315.0 FT
Springline Width	8.2 FT
Begin Building	73
End Building	74

Tunnel Height	9.3 FT
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	74

Tunnel connects the basement level of Building 73, C Building to the basement level of Building 74, The Administration Building.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 315 feet long by 8.2 feet wide and runs between buildings 73 and 74. Building 73 is at the south end of the tunnel and Building 74 is at the north end. The tunnel lining is composed of brick and concrete and is in good condition. Utilities within the tunnel at the time of inspection include water, steam, electric, and telephone; none of which were functioning. Minor problems at this time include corrosion of the utility pipes and conduits.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Replace lighting conduits and wiring, 315 LF.
2. Replace electric lines, 315 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 73-74****INSPECTION DATE: 12/14/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	7
1. LINING	G
2. PORTALS	G
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER	N
7. OTHER	N
8. OTHER	N

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	P
2. WATER	P
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. TELEPHONE	G
7. OTHER	N
8. OTHER	N

59.1	Several damp areas on brick lining.
402.1,2,3	Moderate to heavy corrosion on steam pipes, water pipes, and electrical conduits. Several light fixtures are damaged.

PHOTOS



Photo 1: North portal



Photo 2: South portal



Photo 3: General view of brick lining, looking south toward Building 73



Photo 4: Looking north toward Building 74; Note damp areas along brick lining

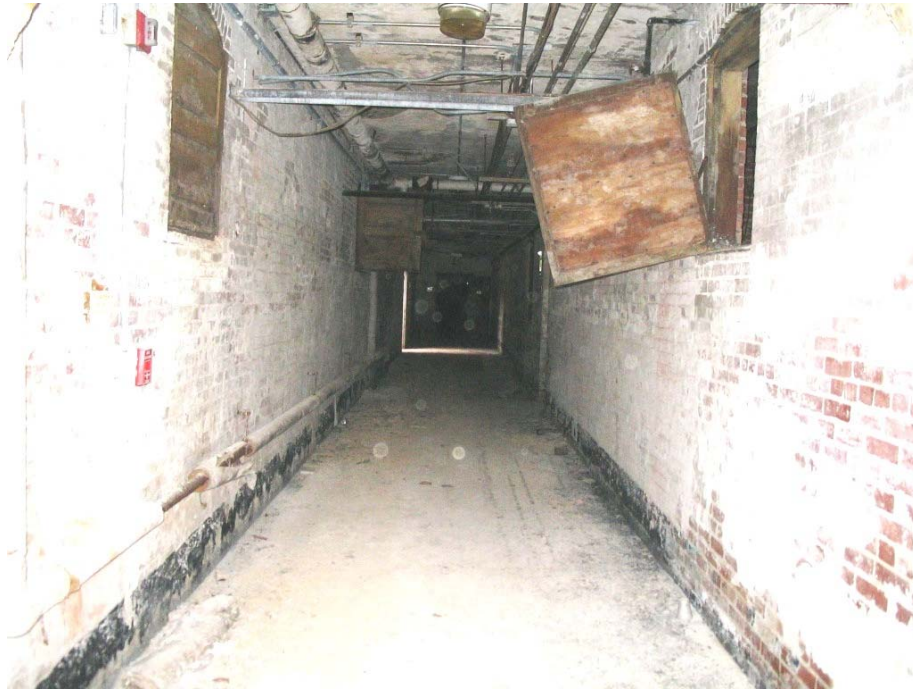


Photo 5: Looking south from south portal; Note hanging door

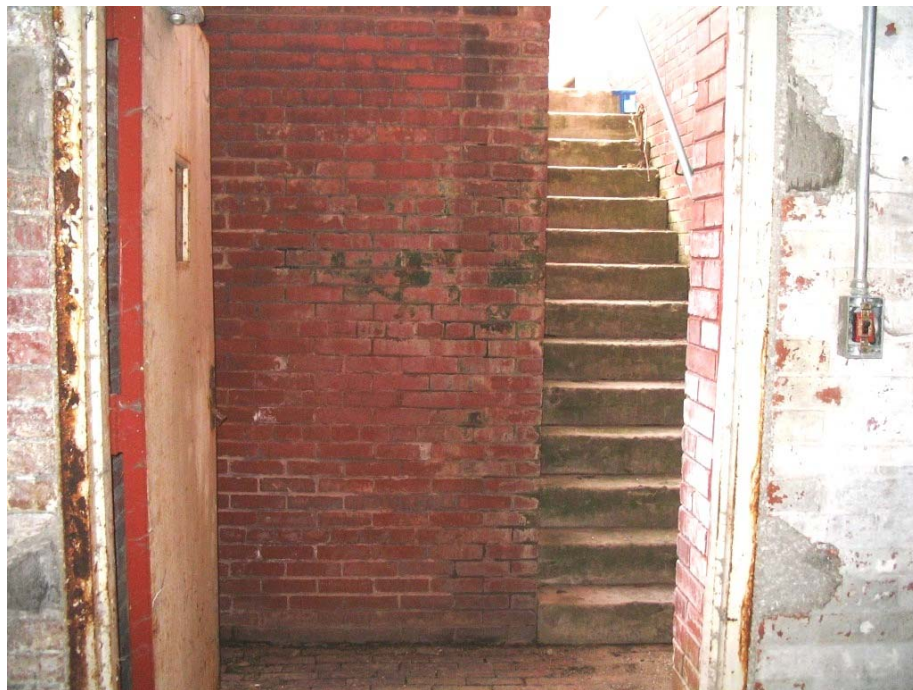


Photo 6: General view of stairway at Building 73



Photo 7: General view of stairway at Building 74



Photo 8: General view of utility pipes, looking north



Photo 9: Corrosion on piping at south portal



Photo 10: Damaged light fixture; Note corrosion on conduit

TUNNEL INSPECTION REPORT

ST. ELIZABETHS HOSPITAL – WEST CAMPUS
WASHINGTON, D.C.
TUNNEL BETWEEN BUILDINGS 74 & 75



NORTH PORTAL



SOUTH PORTAL

Report Prepared by:
Burgess & Niple, Inc.
4160 Pleasant Valley Road
Chantilly, VA 20151

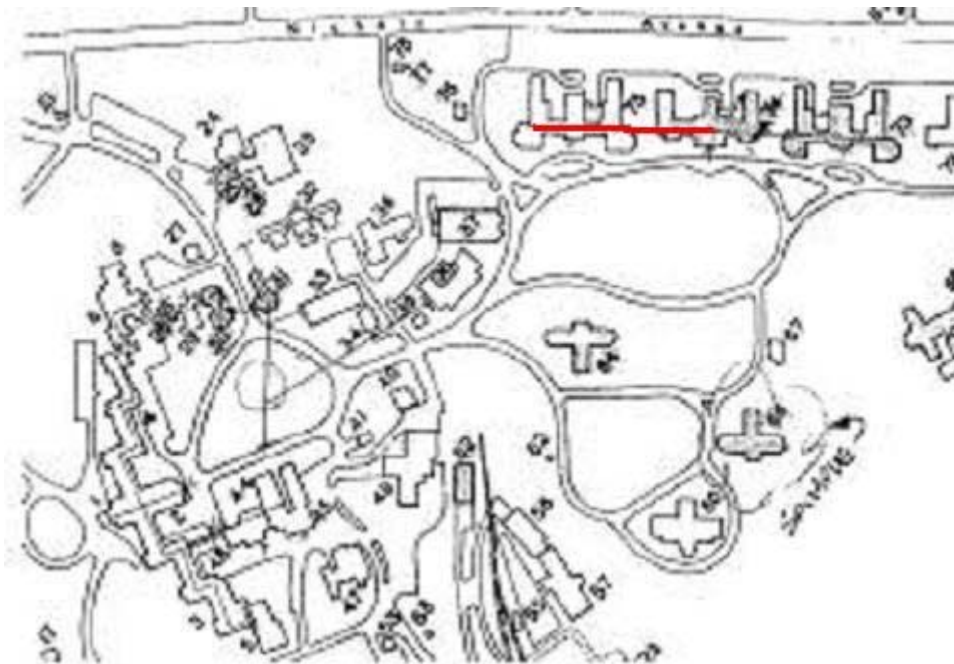
Inspection Date: 12/14/05

TUNNEL IDENTIFICATION AND DESCRIPTION

Lining Material	Brick
Total Length	300 FT
Springline Width	8.2 FT
Begin Building	74
End Building	75

Tunnel Height	9.2 FT
Year Constructed	1900 (est.)
Year Reconstructed	
Entry Through Building	74

Tunnel connects the basement level of Building 74, The Administration Building to the basement level of Building 75, B Building.

LOCATION MAP

INSPECTION TEAM: T. Suthers, J. Wolfe (Burgess & Niple, Inc.)

EXECUTIVE SUMMARY

This tunnel is 300 feet long by 8.2 feet wide and runs between buildings 74 and 75. Building 74 is at the south end of the tunnel and Building 75 is at the north end. The tunnel lining is composed of brick and concrete and is in good condition. Utilities within the tunnel at the time of inspection include water, steam, electric, and telephone; none of which were functioning. Minor problems at this time include corrosion of the water pipes and lighting conduits and downed electrical lines.

RECOMMENDATIONS**Critical Repairs:**

None.

Priority Repairs:

None.

Routine Repairs:

1. Replace lighting conduit and wiring, 300 LF.

FIELD INSPECTION REPORT**STRUCTURE NO. 74-75****INSPECTION DATE: 12/14/05**

CONDITION RATING CODES			
N	NOT APPLICABLE	2	CRITICAL CONDITION – advanced deterioration of primary structural elements. Failure cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the structure until corrective action can be taken.
9	EXCELLENT CONDITION		
8	VERY GOOD CONDITION – no problems noted.		
7	GOOD CONDITION – some minor problems.		
6	SATISFACTORY CONDITION – structural elements show some minor deterioration.		
5	FAIR CONDITION – all primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.	1	“IMMINENT” FAILURE CONDITION – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Structure is closed to traffic but corrective action may return structure to light service.
4	POOR CONDITION – advanced section loss, deterioration, spalling, or scour.		
3	SERIOUS CONDITION – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	0	FAILED CONDITION – out of service; beyond corrective action.
CONDITION RATING CODE EQUIVALENTS FOR SUB-ELEMENTS			
G = GOOD (CODES 7 – 9) F = FAIR (CODES 5 – 6) P = POOR (CODES 0 – 4)			

59. TUNNEL	7
1. LINING	G
2. PORTALS	G
3. FLOOR	G
4. DRAINS & DRAINAGE	G
5. VENTILATION	G
6. OTHER	N
7. OTHER	N
8. OTHER	N

402.2	Minor corrosion of water pipes.
402.3	Lighting conduits have minor to moderate corrosion and are hanging and laying on floor in areas.

401. ACCESS ROOM	N
1. WALL	N
2. CEILING	N
3. FLOOR	N
4. STAIRWAY	N
5. OTHER	N
6. OTHER	N
7. OTHER	N

402. UTILITIES	4
1. STEAM	G
2. WATER	F
3. ELECTRICAL	P
4. GAS	N
5. FIBER OPTIC	N
6. TELEPHONE	G
7. OTHER	N
8. OTHER	N

PHOTOS



Photo 1: North portal



Photo 2: South portal

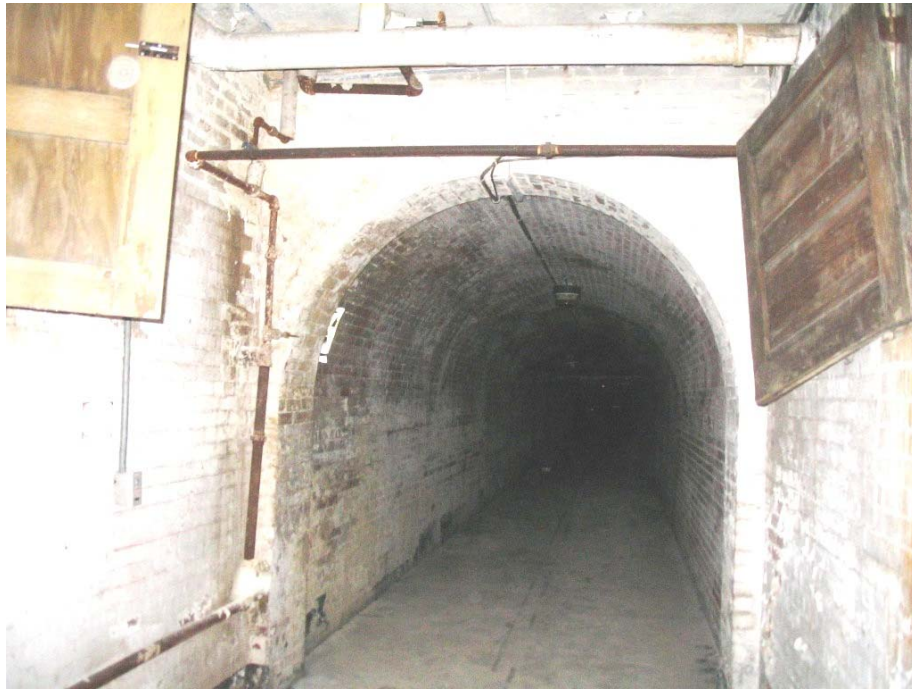


Photo 3: Looking south toward Building 74; Note corrosion on pipes



Photo 4: Looking north toward Building 75; Note corrosion on pipes



Photo 5: Looking north toward Building 75; Note corrosion on pipes



Photo 6: General view of doorway at Building 75



Photo 7: General view of stairway at Building 74



Photo 8: General view of brick lining



Photo 9: General view of brick lining at south portal



Photo 10: Looking south toward Building 74; Note downed lighting conduit and reduced vertical clearance due to pipes



Photo 11: Downed light and conduit



Photo 12: Damaged light fixture